

The National Locksmith®

March 1989



Vehicle and Home Security

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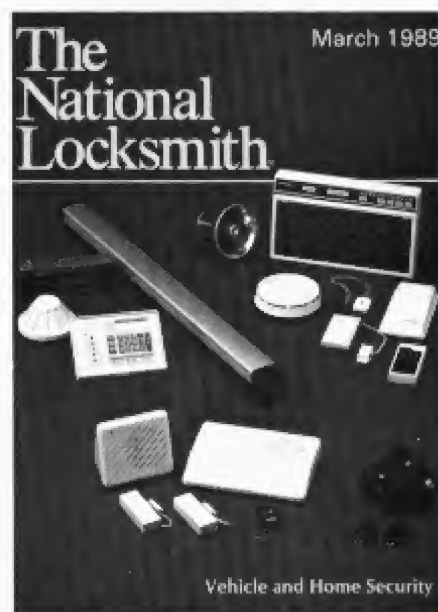
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This month's cover features products available from the following companies: (clockwise from upper left) Aritech Distribution; Schlage Lock Co.; Serpico; and Code-Alarm. (Photo by Bakstad Photographics.)

*Click on the article
you wish to read*

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Commentary

We Have A New Law

Here is some news that will make it tough on those people trying to sell locksmithing tools to the wrong people. Through the efforts of ALOA, a law has been passed by Congress making it illegal to mail or deliver certain locksmith tools to the general public.

The law states that no one can mail or cause to be delivered any locksmithing device in the following categories: "a device or a tool (other than a key) designed for the unauthorized opening or bypassing of a lock or similar security device; a device or tool designed to manipulate the tumblers in a lock into the unlocked position through the keyway of such lock; or a device or tool for making an impression of a key..."

However, the law allows such items to be mailed or delivered to "a lock manufacturer or distributor, a bona fide locksmith, a bona fide reposessor, a motor vehicle manufacturer or dealer." Although I wish reposessors could have been kept out of that group, I can see why they had to be included.

What this all means is that most all members of the general public will no longer be legally allowed to receive locksmith tools of the above types via the mail or UPS. In fact, I noticed that not even the Police were mentioned as being allowed to receive these items by mail.

There are now criminal penalties for mailing these tools. The new law makes it "an offense to knowingly mail or cause to be delivered by interstate delivery, a locksmith device. The maximum penalty is imprisonment for one year and a fine...."

I believe there is both good and bad sides to this law. Of course, it is great that there is now a law to prevent our tools (car opening tools, lock picks, and impressioning tools) from being sent to the public. However, I do think that this law could cause some aggravation to our distributors. After all, when you now order a restricted tool, they will have to determine whether you are a "bona fide" locksmith. I'm not even sure of what that really means. If they knowingly violate the law, they could technically be sent to prison for a year and face a fine.

This will mean that some additional care will have to be injected into the ordering process for the wholesaler. But the advantage is that it is now illegal to send these tools to people who should not have them. The advantage should be worth the extra trouble. One possible loophole in the law according to the way I read it is as follows. The law says that it is illegal to *send* an unauthorized person such a tool. It does *not* say that an unauthorized person can't simply come to the business and *pick up* such a restricted device.

But all in all, the law goes a long way toward correcting an important problem. Many of you have sent me clippings of advertisements offering car opening tools to the general public. This will be easy to prevent in the future. Jon Payne of ALOA has been active in getting this law passed. He recently told me that ALOA is now working with the Post Office to draft regulations to deal with violations. When that is complete, an enforcement procedure will be announced.

Hopefully, there will be a simple form you could fill out to report a violation you have observed. I am interested in your opinion of this new law. Will it help? I would also like to hear from distributors who can tell me how they think the law will affect their business. Drop me a line with your thoughts.



Marc Goldberg
Editor/Publisher

March 5

Letters

Comments, Suggestions and Criticisms

The National Locksmith is interested in your view. We do reserve the right to edit for clarity and lengths. Please address your comments, praise, or criticism to: Editor, The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107. All letters to the editor must be signed.

Customer Security Seen As Top Priority

Editorials, Commentaries and Letters to the Editor have appeared in various security and trade publications in recent years with regard to policing our own industry. These comments and suggestions have offered many ideas for the manner in which each of us should approach, individually, and collectively, our own internal policing and many reasons why this needs to be done. The reasons, generally, fall into two categories: customer security and state regulation.

It is not my intent to enter into the pros and cons of state regulation but it does seem that if we do our own thing, and do it well, we will be in a better position to delay political interference while, at the same time, structuring which would establish some type of state control. I believe that customer security is the most important category for us to consider and if we put this as a top priority in each of our operations we can and will gain the professional

status which should be our goal. Keys will be duplicated by someone as long as there are key machines to duplicate with.

The "Do Not Duplicate" issue has been beat to death through the years with many opinions and policies expounded on how this should be handled. Certainly there is no one answer that will satisfy all of us and each shop should establish a ground rule guide for the handling of a DND key which is presented for duplication.

There is a very thin line here and it is often difficult to ascertain which side of the line we are going to take. Knowledge and awareness are helpful in making decisions and a definite commitment to customer security is an absolute necessity.

We, as security specialists, have a commitment to the public to provide protection for their property and often their lives. This commitment should not be taken lightly. Was the last DND key you duplicated used for its original intended purpose? We just don't know, do we?

Jack Roberts
Ohio

Tradesman Talks Against Regulations

I would like to offer this tip concerning good business practices in regards

to a very serious subject. Reforms and restrictions that are trying to be introduced governing the locksmith trade and related fields. It would be in bad judgement to penalize the trade as a whole for the mistakes of a few. Now, many of us know that locksmiths are experiencing many obstacles that are interfering with them making money, but the main thing is to make the trade better and not to destroy it.

Can we risk the future of our businesses by making enemies in our community? By this I mean the police and fire departments, wrecker services, garages, the stores that cut keys and the mom and pop small timers trying to supplement their incomes by dabbling in the locksmith trade.

The point is these people have friend's and family backing them. You step on their toes and you're going to get yours chopped off. Now it's easy to start a panic, but it takes hard work to stop one. It's also easy for someone to walk in and take advantage of troubled times by offering the quick fix or by offering to get the state and federal government involved by imposing restrictions in the trade. This uses taxpayer's money and can run into the millions.

This is big business for the politicians but for the locksmith it is bad business, and will leave a bad taste in the public's mouth. You can bet if the

Continued on page 84



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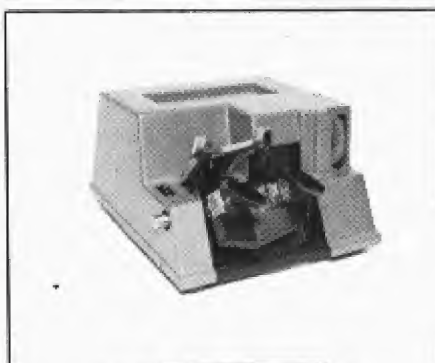
First Prize



HPC Bravo

The two speed motor cuts brass or steel. The 4-way vise jaws securely hold almost any key. A micrometer style depth adjustment and precise shoulder gauging cut the most accurate keys possible.

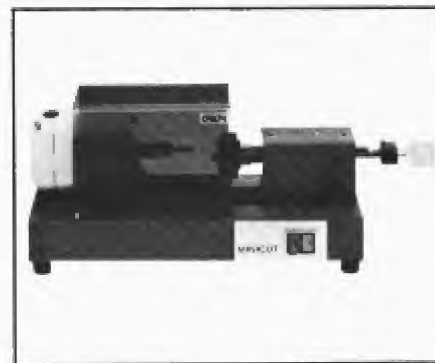
Second Prize



ESP 990 Manual

This machine features double-sided reversible jaws that eliminate the need for adaptors. The carriage is fixed to the sliding carriage shaft resulting in reduced play and less shaft wear.

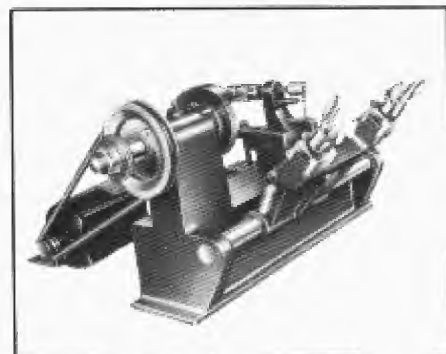
Third Prize



Ilco KD94

Cuts the 1137 tubular key, brass or steel accurately and quickly. Features include large chuck to hold standard size key heads, easily adjustable.

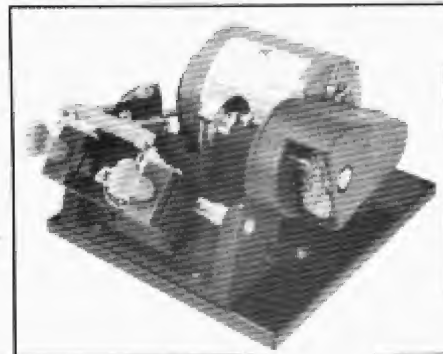
Fourth Prize



Belsaw 200

Duplicate, cut by code, cut flat steel keys. Complete machine with motor, three cutters, guides, and instructions. Built-in micrometer.

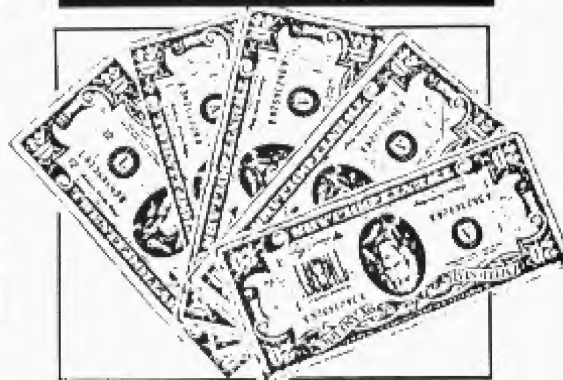
Fifth Prize



HPC 9160

Ideal for large key duplication. Equipped with fine double-sided jaws ensuring accurate cutting with little or no wasted blanks.

Sixth Prize



\$150 Cash

Everyone can use a few extra dollars! This prize will brighten your day...and fatten your wallet.

Code Books From The National Locksmith

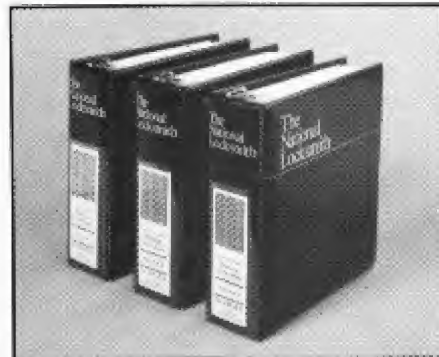
Seventh Prize



General Code Book Set (NGCB)

These three books contain 450,000 codes covering domestic lock and automobile codes.

Eighth Prize



Padlock Code Book Set (NPCB)

These three volumes offer 462,000 codes covering Dudley, American (Junkunc), Master and Yale.

Ninth Prize



Foreign Car Code Book Set (NFCB)

This two volume set holds 432,000 codes for the complete variety of foreign cars, from Alpha Romeo to Yugo.

Technitips

Helpful Hints from Fellow Locksmiths



Send me your Technitips. Who knows, you may be our next winner! c/o The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107

by Robert Sieveking

Many thanks to all those that submitted Technitips this month. I'm sure that our readers will find something interesting and of value in this month's column. If you submitted a Technitip and you have not seen it in print yet, be patient. During the last few months there has been a tremendous increase in the number and quality of tips from our readers.

The one common denominator in a majority of the Technitips submitted is that they all tell a story. These success stories are interesting reading, but remember to give enough specific detail of the actual job so that it can be described to a reader. One tip that comes to mind describes the opening of a combination padlock by manipulation. Very simply, it stated, "turn the dial left and right until the lock opens." The story of how five of these locks

were defeated in a short time was almost a page of commentary. The description of how to defeat the lock was two sentences long. Details and drawings help to describe the tip. If I read a tip and do not understand it or cannot duplicate the procedure, I can't use it.

The National Locksmith just published two new books: Technitip Handbook, Volume 1 and The National Locksmith Guide To: Wafer Lock Reading. My tip is to buy both of these books and study them. If you're interested in making keys for foreign autos, the wafer lock reading book is a must.

March's Best Tip

Here is a Technitip that simplifies the removal of Weiser key in knob cylinders. To remove the cylinder without removing the lock from the door, first turn the inside knob with light pressure and hold it there. Insert any tool, like a pick, into the keyway until you feel the spring-loaded spindle at the rear of the cylinder plug. Depress and hold the spring-loaded spindle as you apply

very firm turning pressure to the inside knob. This pressure will hold the spring spindle in place as you insert the customer's key, turn the plug to the 4 o'clock position and remove the cylinder for rekeying.

To replace the cylinder, depress the inner spindle and hold in place with very firm turning pressure. Replace the cylinder assembly and turn the plug back to the 12 o'clock position. Release the inside knob and the spindle will spring into place to retain the cylinder.

Also, a short tip on all Nissan tow motors. They are all keyed alike. Use an X10 (Taylor) key because it is shorter and less likely to get bent in use. The code number is N1417 and the cuts are 776566.

R. Lazich
Wisconsin

I have a little tip about tamperproof screws that has worked quite well for me. I have the un-do-it tools for removing these screws, but they sometimes do

How To Enter

All you need to do to enter is submit a tip, covering any aspect of locksmithing to *The National Locksmith*. Certainly, you have a favorite way of doing things that you'd like to share with other locksmiths. Why not write it down and submit it to: Robert Sieveking, Technitips' Editor, *The National Locksmith*, 1533 Burgundy Parkway, Streamwood, IL 60107.

Tips submitted to other industry publications will not be eligible! So get busy and send in your tips today! You may win cash, merchandise, or even one of many key machines or code book sets! At the end of the year, we choose the winners of the listed prizes.

Last year dozens of people walked off with money and prizes. Wouldn't you like to be one of the prize winners for 1989? Enter today! It's a lot easier than you think!

Every Tip Wins 'Locksmith Bucks!'

Yes, every tip published wins a prize. But remember, you must submit your tip to *The National Locksmith* exclusively. Each and every tip published in Technitips wins you \$25.00 in Locksmith Bucks! Use this spendable cash toward the purchase of any books or merchandise from *The National Locksmith*. You also receive a Bonded Locksmith bumper sticker, decal and patch. Plus you are now eligible for the really big prizes!

Best Tip of the month prizes!

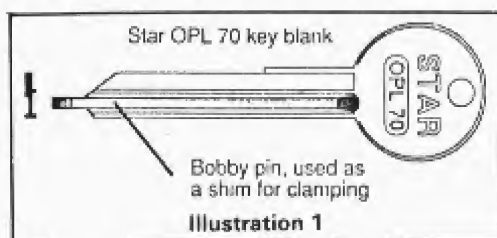
If your tip is chosen as the best tip of the month, you will win \$50.00 in cash as well as \$35.00 in Locksmith Bucks! Plus you will receive a quartz Locksmith watch, a Bonded Locksmith bumper sticker, decal, patch and a Locksmith Cap. Plus, you may win one of the great prizes pictured above.

not work as well as they could. Sometimes the screws are very hard to get started.

My Technitip is to use an automatic centerpunch to start the screws. Work the screw around, using the punch to drive the screw head in a counter-clockwise direction. The center punch acts like an impact tool to break the screw loose. Once the screw is broken loose, the un-do-it tool will work to finish the job.

T.N. Sebring
Montana

If you are having problems clamping the Star OPL 70 key blank in your Belsaw machine, this Technitip should be a big help. Borrow a bobby pin from your wife or girlfriend and slip it over



the tip of the key. (See illustration 1.) The hairclip will fill the warding grooves in the blank and the key will clamp securely in your key vise.

Bob Davison
South Dakota

Editor's Note: From the flimsy excuse department. When your wife finds a strange bobby pin in your pocket while doing your laundry, you can quickly exclaim, "Thank goodness you found that dear! I use it to clamp the Star OPL 70 key blanks in my Belsaw machine."

This Technitip is for making an inexpensive paint chip guard for use around automotive locks.

A scrap of magnetic sign material with a hole the size of the auto lock, will adhere to the door of an auto and protect the finish while you remove the face cap or work to remove a broken key. The magnetic sign material will prevent the finish from being marred in the event of a slip while you're working. I've found that a 2" x 3" piece of material with a 1 1/4" hole in the center is best

suited for the majority of applications. Better to be safe than sorry.

Thomas Mazzone
Illinois

Here is a little Technitip that I have been using for a number of years. To allow me to decrease the amount of time spent at any particular job, I carry a number of keyed alike cylinders in sets of two, three, or four. This allows me to simply replace the customer's locks with different cylinders, complete the bill and be on my way. To identify these cylinders, I stick self adhesive numbers on the face of the cylinders and on the keys. The self adhesive numbers and letters that come with video tapes are perfect for this task.

E.D. Hoffman
Michigan

Editor's Note: Sharpie marking pens work equally well. They will mark on metal and do not smear or wipe off. The marking pen is also handy for marking code designations or date of service information on master keyed

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cylinder, removable core cylinders, safe and vault locks or almost anything.

This Technitip is used when installing electric strikes in cement filled metal frames. I install the electric strike according to the manufacturer's instructions, but before the final installation, I blow out all the dust and loose debris, and soak the inside of the hole with WD-40. The WD-40 keeps the dust down after the job is completed.

Cement dust in the mechanism is a common cause of failure in electric strikes.

Richard Novak
Minnesota

This Technitip is really more of a heads-up for those of you who have occasion to work on VATS equipped Corvettes. The VATS system needs a fully charged battery to operate properly and allow the auto to start. If you feel that the battery is low as you pro-

gress through the 15 possible code chips, there is a possibility that when you do find the proper chip, the computer won't recognize it. Make sure the battery is maintained in a charged condition as you progress through the 15 codes.

Another tip concerning VATS vehicles is to look at the VATS fuse in the fuse panel on the passenger side of the car. The VATS decoder uses a 10A fuse. If this fuse is blown, the vehicle will not start. Carry extra 10A fuses on your services truck for these cars.

David Drew
Florida



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Editor's Note: Jumper cables on a locksmith truck are the same as Slim Jims on a tow truck. Make sure your insurance covers incidental damage to the customer's car if you intend to jump the battery on these cars to get them started. Whether you inflict the damage or not, you may be held responsible for the replacement of a computer, interrogator or some electronic device which could be damaged because of a "jump." If an electrical problem exists in the car you're servicing, you could damage your service vehicle's electrical system. Just a word of caution.

If you encounter a lockout on an insulated fire file, but you have a key which seems to operate properly, there is a possibility that your lockout is being caused by a disconnected drawer latch.

The customer explained that the lock worked normally. There was a key which operated the lock and the lock would lock and unlock the bottom drawer. (This was a two drawer fire file.) The problem was that the lock was not unlocking the top drawer.

After examining the cabinet, it became clear that the problem was not in the lock at all, but in the drawer latching mechanism. A lever near the handle had to be depressed, which retracted a spring latch in the edge of the drawer. It seems that the latch linkage had become disconnected, and the latch was holding the drawer fast. By observing the location of the latch on the open drawer, I was able to locate and drill a very small hole through the underside of the divider between the drawers which allowed me to push the latch back and open the locked drawer without apparent damage to the cabinet.

I hope this tip will help someone else out if they should come across a similar problem.

Vito Ancona
Maine

This Technitip is for an easy method of feeding the vertical lock rod through the trim panel when assembling a car door. I have always had a problem hitting the hole, until I came up with this idea. Place a plastic drinking straw over the lock rod before replacing the door trim panel. This way, the straw can be inserted through the hole in the trim panel as the panel is slid in place. The lock rod can't miss. (Now isn't that easy?)

John Kairis
Pennsylvania

This Technitip is for the new Ford Festiva. I recently had the opportunity to make a key for this auto. The customer brought in the door lock, which had no code on it. These autos use the 1982 and up Mazda codes 6500+ series. While disassembling the lock to make the key, I had an unpleasant surprise. The lock only contained wafers in the 1, 3, 4 and 7 positions. The wafers in the second, fifth and sixth positions were not contained in this lock. Because the car was over fifty miles from the shop, and the customer did not have enough money to pay the service call, I decided to search through the code series to find out how many keys had the same cuts in the known positions.

Using the known cuts, found by disassembly, I found only one combination in the code series that used the same cut combination for positions 1, 3, 4 and 7 from this lock. A key was made, using the known cuts found by disassembling the lock and also the cuts found by searching the code series. Fortunately, the key worked all the locks of the car and the customer was pleased.

You can see that it may be possible to find unknown cuts for a key by searching through the code series. This method may be a little time consuming and it may be necessary to cut more than one key for the car, if you find more than one code that uses your known cuts, but it is definitely a method that will work if you do not

have immediate access to the other locks of the car.

Bill Cochran
Wisconsin

This is a Technitip that should help the technician that is called upon to repair the Simplex Unican 1000 locksets.

When repairing a Unican 1000, instead of holding it in your lap, which is rather awkward and clumsy, make

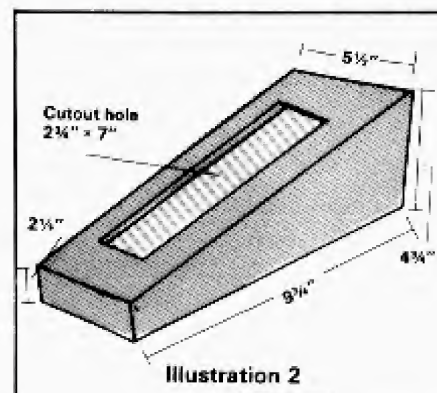


Illustration 2

Continued on page 84

NATIONAL AUTO LOCK SERVICE, INC.

National Auto Lock Service, Inc. offers a wide range of equipment and services for the Automotive Locksmith. From tools and hard to find key blanks to transponder programming, we can take the mystery out of car service. We accept credit card orders, and can ship COD. Contact us for the latest in automotive technology.

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Newsmakers

New Products and Industry News

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You learn how to install and service magnetic contacts and pressure mats, microwave, ultrasonic, and passive infrared detectors, personal identification systems and electronic listening devices, and even central station alarm systems and today's most sophisticated fire warning equipment.



You will learn by doing—evaluating your own security needs, installing the expertise you need to move fast into an exciting career, even a business of your own, as today's expert security electronics technician.

Heartland Hardware Gives Express Delivery of Monarch

Heartland Hardware, a new Master distributor, has announced the express availability of Monarch architectural exit devices.

Heartland Hardware was created specifically to expedite shipments of Monarch architectural exit devices to U.S. contract hardware distributors with an immediate product need. Heartland will stock Monarch's popular 17, 18, 19 and XX Series panic devices with several trim functions in a variety of finishes. Component parts will also be available.

For distributors ordering convenience, Heartland representatives will be available during the hours of 7 a.m. until 6 p.m. central standard time. Orders can be placed anytime via FAX or toll-free telephone number. Same day delivery will be made through United Parcel Service's regular or next-day service, or customer-specified common carrier.

Kwikset's ProtectoKey Helps Builders

Builders and remodelers are discovering that Kwikset's ProtectoKey lock system solves the problem of how to control the keys given out to subcon-



tractors during construction, and to sales people after the house is completed.

ProtectoKey, "the lockset with a brain," is Kwikset's patented system for automatically locking-out subcontractor keys the first time the homeowner's permanent key is used. This relieves contractors of the responsibility and time-consuming work of collecting keys from subs and other workers.

The ProtectoKey system consists of 10 subcontractor keys and two owner keys, which come in a separate, sealed packet. All subcontractor keys are numbered for simple record-keeping.

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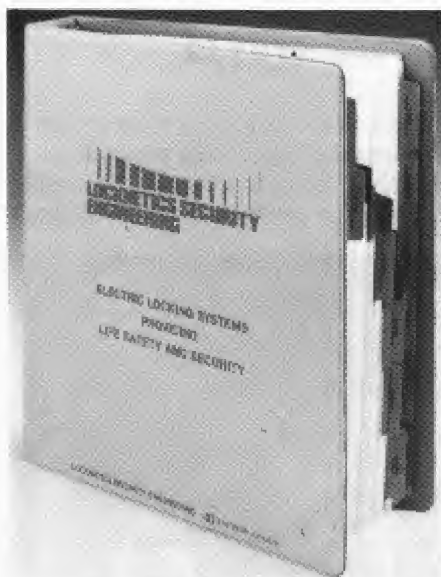
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Integrity.
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New Catalog From Locknetics Security Eng.

Locknetics Security Engineering introduces their new product catalog that provides readers with complete information on LSE's line of electronic locking systems for life safety and security.

Product categories outlined are: electromagnetic locks, electro-mechanical locks, specialty equipment,



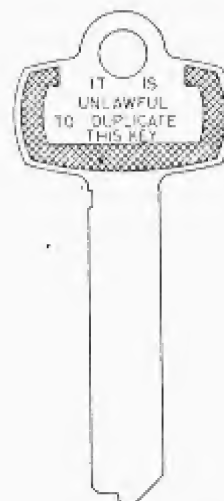
controllers, and power supplies, station controls and consoles. Each section includes a description of the product and its uses, as well as features, benefits, and options. Photos of product alone and in-use give the reader thorough understanding of product application. To help make using LSE products easy, templates and wiring diagrams, along with a section on maintenance and troubleshooting, are included in the catalog.

Nickel/Silver Best Added To ESP Line

ESP is excited to announce the addition of the nickel/silver Best sections to its ever-expanding product line.

As many of you know, ESP has produced the nickel/silver Best sections for Better Security Products of New Jersey since their inception nearly 10 years ago. Through an agreement with BSP, the nickel/silver Best blanks will now be sold and marketed by ESP Corporation, effective immediately.

As with all of their keys, the nickel/



silver Best blanks are manufactured to original manufacturer's specifications and feature a radiused bottom. All the blanks are coined as described.

The blanks are packed 50 per box, 1000 per case. Sections in stock at this time are B, C, E, F, H, J, K, M, and N. Sections that will be added are A, D, DD, G, L, and Q. These blanks have been added to our nickel/silver line and can be combined for quantity pricing.

Major

MANUFACTURING, INC.

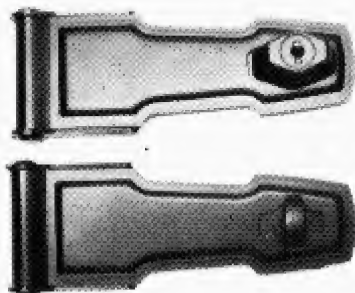
Installation Tools

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Stanley Hardware Offers Decorative Hasps

Stanley Hardware has expanded its Lifespan® line of hasps to include a decorative latching hasp (Model CD930) and a decorative key locking hasp (Model CD931). Both have a black finish and scalloped edges that complement black gate hardware.



The new decorative 6" hasps are corrosion resistant and are designed with a full-width knuckle, supporting side walls, a corrugated leaf and a hold-open feature. Both hasps latch without locking while the Model CD 931 also offers a built-in key lock for added convenience.

Yale Security Introduces Touchcode® Locks

Yale Security Inc., has introduced the Yaletronics Touchcode® series of electronic locksets for industrial, commercial, residential and hospitality applications. Designed to provide keyless entry in both interior and protected exterior environments, the locksets are microprocessor controlled, and operate from a self-contained, internal battery pack.

Entry via the lockset is achieved by entering a six-digit memorized number

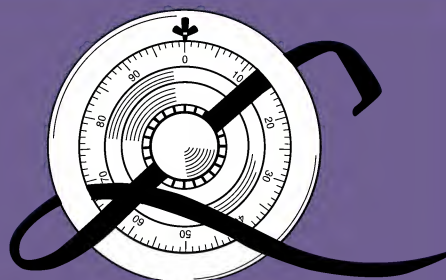
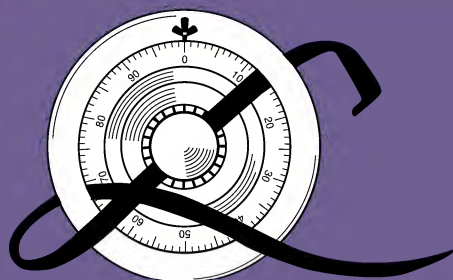


on the keypad. When a correct number is entered, the lockset will unlock for an adjustable period of time, ranging from 4 to 16 seconds.

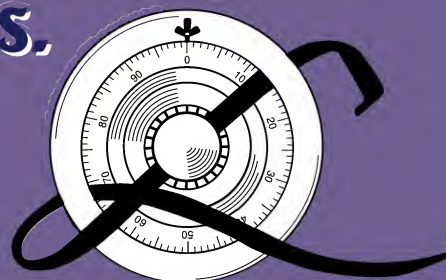
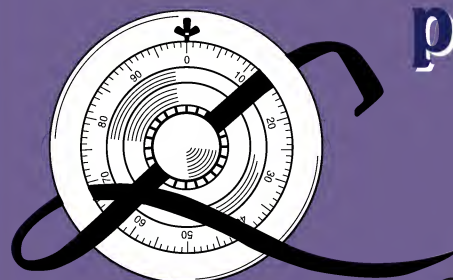
R & D Introduces Ford Side-Bar Pickset

R & D Tool Company announces the arrival of a new pick set. This is the Ford Side-Bar Pickset for the new ten-cut ignition lock only. It works on the same concept as their GM Side-Bar Pickset but with different dimensions.

The pickset consists of two spring compressors, one cut down Ford key blank and one spring retainer with slide.



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Buddy's Wall Safe Secures Valuables

Buddy Security Systems of Chicago, Illinois, is introducing their new compact "wallsafe" that provides overnight or permanent security for cash and bonds, important documents, keys, firearms, etc.

The fire-resistant "wallsafe" mounts snugly between wall studs in the home, office, apartment, garage, just about anywhere.

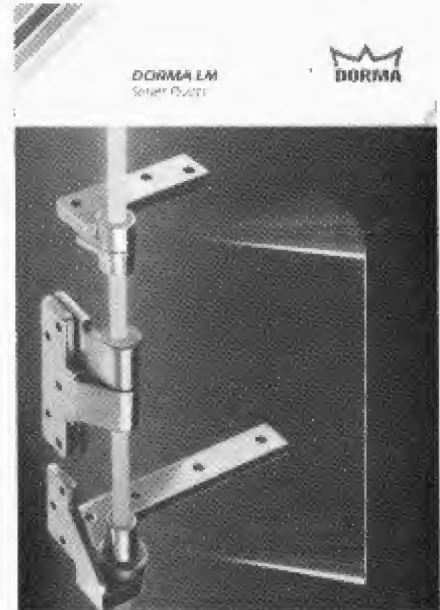
The unit features a double-reinforced heavy gauge steel door, with full piano hinge and a recessed deadbolt combination lock; over 500 cubic inches of storage space, with 12 1/4" x 6" opening for easy access, and attractive putty "textured" steel construction.



Dorma Highlights Pivots In New Bulletin

Dorma Door Controls Inc. has introduced a four-color bulletin describing its Dorma LM series pivot line.

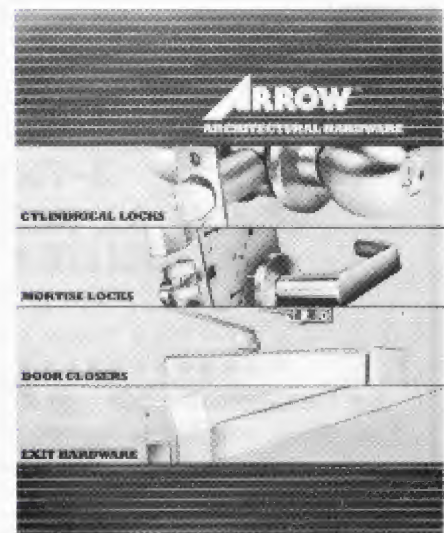
Dorma's pivots span a variety of styles and applications and are compatible with the company's products on wood, aluminum, or hollow metal doors as well as doors of special design, (i.e., paneled doors and doors of unusual weight, thickness or material).



New Arrow Catalog Of Architectural Hardware

The new architectural hardware catalog from Arrow, includes for the first time its recently added lines of door closers, exit devices and exit alarms.

This 12-page "condensed" catalog includes Arrow's lines of heavy and standard duty cylindrical locksets, mortise locks and appropriate trim options for both. Numerous product applications and functions are also detailed.



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A Look At Aritech

"You have an excellent resource to help you get started in the alarm business—the alarm equipment distributor. Take advantage of the services they offer."

by David Cohen

Whenever a locksmith sells or installs a lock, he has an excellent opportunity to add an electronic alarm system to the sale. Your customer is buying a lock from you because he is concerned about the security of his home or business. Take advantage of this opportunity, and sell him an alarm system.

Selling and installing electronic burglar and fire alarm systems and equipment can more than make up for the income you have lost as more and more of the mechanical lock and key business has gone to the retail outlets catering to the do-it-yourself trade.

Although many locksmiths are aware that they can easily increase their sales and profits by selling and installing electronic security systems, they are concerned about what products to use and how to install them. You have an excellent resource to help you get started in the alarm business—the alarm equipment wholesale distributor. Take advantage of the numerous services offered to you by many distributors.

This article describes how one full-service distributor, Aritech Distribution, provides services to alarm dealers, locksmiths and other installers at its 23 distribution centers in the U.S.A. and Canada. Use these services and open up new opportunities for your business.

Why Distributors? There are more than 200 companies that manufacture electronic alarm products. They cannot afford to maintain and staff local offices and warehouses in every urban market. It is more cost effective for the manufacturer to sell through wholesale distributors. The distributors, in turn, sell to alarm installing companies such as locksmiths.

Most distributors stock the products of many competing manufacturers. Thus they are in an ideal position to give you unbiased advice as to which



Aritech Distribution supplies locksmiths and other security system installers with products made by more than 100 leading manufacturers.

products are best for each specific installation.

Some alarm equipment distributors serve a single urban center, others have several outlets in a region, others (like Aritech) are national with distribution centers across North America.

Physical Distribution—Each Aritech distribution center maintains an inventory of over 3,000 different products made by more than 100 manufacturers. This allows the locksmith or dealer to avoid the high cost of financing large inventories. Dealers also save the cost of storage space, the cost of obsolescence, handling costs, and numerous other hidden costs. You can drop in for immediate pick-up or use the distributor's convenient toll-free telephone number.

Most alarm equipment distributors try to stock everything that the dealer will need for any alarm installation. One stop shopping is convenient and efficient.

First and foremost the distributor carries a full complement of burglar alarm equipment: the various sensing

devices that detect an unwanted intrusion, the reporting devices that sound a local alarm or transmit an alarm signal to a remote location, and the control panel that interconnects and supervises the overall system. Alarm equipment distributors also carry a wide range of other security products such as access controls, electromagnetic locking devices, closed circuit television and fire alarm. They also stock batteries, power supplies, wire and cable, and other accessories and tools.

Technical Assistance—If you are just starting out in electronic security, many distributors have qualified personnel who can help you with component selection and installation techniques. The telephone and counter salespeople in each Aritech Distribution Center are security industry specialists. Many have had extensive alarm system installation experience. They will effectively and cheerfully help you plan an installation and can help you select what products to use. Because they sell products made by many competing manufacturers, they can offer unbiased advice and a broad range of technical support.

As an added bonus, Aritech's distribution centers continuously offer training courses and seminars to help new and experienced dealers. Experts from the manufacturers demonstrate and teach dealers how to use security industry technology and products. The company's catalog is designed to permit the dealer to compare product options conveniently and quickly, and then easily order the selected products. Information is frequently mailed to dealer people on mailing lists to keep them up-to-date on new products, technical data and price specials.

Sales are booming—The demand for electronic security is booming. You can get your share if you effectively seek it. Take advantage of the services offered by alarm product distributors. They are waiting to help you. ■

Schlage's Keepsafer Compact

"The Schlage Keepsafer Compact requires only a screwdriver for installation and represents a significant breakthrough in the security systems category."

Home security systems have long been available to homeowners who could afford the high price tag of \$2,000 to \$5,000. In response to the increasing demand for affordable home and apartment protection from security-conscious consumers, Schlage has developed a complete electronic security system using wireless technology. This product line is tailored for sale by locksmiths to the end-user.

The basic Schlage Keepsafer Compact system has a suggested list price of \$119.99 and includes a control console, a remote control, and a transmitter/sensor set. The Schlage Keepsafer Compact requires only a screwdriver for installation and represents a significant breakthrough in the security systems category. Unlike most security systems, Keepsafer Compact is portable and can be re-installed when you change apartments or homes. Keepsafer Compact is a modular system that works with many of the same accessories found on professionally installed systems.

The Schlage Keepsafer Compact is as easy to operate as a garage door opener. Users arm and disarm the system using a miniature remote control. The miniature remote control is small enough to fit a key chain, or in your pocket or purse. As a convenience feature, you can arm or disarm the system from outside.

The system includes the only over-the-counter Emergency Dialer option which interfaces through the Schlage National Central Station to contact police, fire, medical or other pre-arranged numbers throughout the nation.

To arm Keepsafer Compact, simply press the remote control button once—an acknowledgement tone will follow immediately. After 45 seconds, the system will be armed as verified by the armed indicator light. To turn off, simply activate the remote control again; the system shuts off immediately. Keepsafer Compact also contains a 20-second delay feature to enter without using the remote control. Lastly, the remote control contains a



The alarm can be armed or disarmed with the remote control unit.

24-hour Panic provision that sounds the alarm instantly in an emergency.

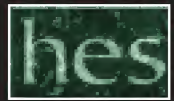
Consumers can custom-tailor their Schlage Keepsafer Compact system with a complete line of accessories including extra transmitter/sensor sets, medical pendant, bedside alarm, and a glass break detector.

The \$119.99 Schlage Keepsafer Compact is part of a complete range of security systems offered by Schlage addressing the needs of consumers and professional installers. The Keepsafer product line is backed by Schlage's 60 years of experience in the security industry. All products feature a one-year warranty and a consumer installation help line. Schlage Security Systems are available at home center/hardware, discount, and electronic stores nationwide.

For more information contact: Schlage Lock Co., 2401 Bayshore Blvd., San Francisco, CA 94134, (415) 467-1100. ■



The Keepsafer system from Schlage Lock Co.



Security



Alarm &

Security Systems

The alarm and security industry is becoming more and more attractive to the locksmith. Many manufacturers are now designing with an eye toward your needs. You can, indeed, compete in this profitable aspect of security.

Many manufacturers even offer training and back-up assistance to the locksmith to make installation and service easier. Please look over the products in this section. You can request more information on anything that catches your eye. Simply circle the appropriate number on the Rapid Reply Card.

The RFP/10 By Auto Page

Auto Page is introducing its newest addition to its line of RF remote-controlled vehicle security systems, the RFP/10.

The system comes with a pager, which has a built-in RF remote control transmitter in a single compact unit. The RFP/10 features a last door arming system, automatically initiating security seconds after the last door is closed. This unit also provides a valet override switch and a starter disabler, complete with the resonance sensors.



Circle 233 on Rapid Reply

Code-Alarm's New Night Hawk System

The Night Hawk security system from Code Alarm, Inc. had its debut at the Consumers Electronic Show in January. Among the new features, is a single transmitter to control both vehicle security system and Code-Alarm's new System 2000 home security system.

The new Night Hawk features an "intelligent" receiver capable of electronically learning multiple codes, thereby eliminating the need for dealers to code additional transmitters manually.



Circle 234 on Rapid Reply

Crimestoppers' Commander

Crimestopper Security Products, Inc., has introduced the HP-8850PR Commander™, the first FM pager vehicle alarm system.

Like any other pager on the market, the Pager/Remote includes a hand-held set which emits a tone if an intrusion is attempted on the vehicle it protects.

But, unlike other pager systems, this unit includes all the features found on the Crimestopper HP-8710 Stiletto™ Remote Control Alarm System.



Circle 235 on Rapid Reply

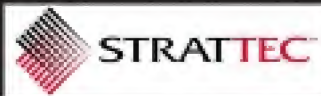
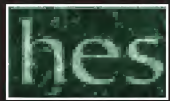
Harrison Debuts Remote Lokpopper

Harrison Electronics introduces the Lokpopper™ 91L, a remote security system with power door locking/unlocking controlled by a miniature RF transmitter. The Lokpopper™ Remote installs in any car with power door locks and does not require additional external relays.

Other Lokpopper™ features include remote panic, LED and chirp status indicators, starter disable circuit, outputs for additional sensors and accessories, last door arming, and a complete hardware package.



Circle 236 on Rapid Reply



Black Widow By David Levy Co.

A new remote security system, the Black Widow, is now available from David Levy Co. The alarm has all the standard features of a remote system including valet and panic modes.

The components include 2 RF transmitters, 120dB siren, flashing LED and shock sensor. The Black Widow comes in bright 3-color packaging and dealers receive matching brochures for POP display in stores.

DLC has priced their new alarm with dealer profit points in mind.



The Lok-Itt Co.'s Steering Lock

The Lok-Itt Company now offers their heavy duty steering wheel lock, which, when securely fastened to the steering wheel column, helps prevent the steering wheel from turning, thus helping to foil would-be car thieves.

Made of steel, with a protective and decorative vinyl coating, this device, which is easy to install, fits snugly, and allows access to various controlling levers on the steering column, but keeps the steering wheel stationary.



MaxiGuard Offers The Maxx

MaxiGuard of America's complete remote control security system, the Maxx, creates a security environment for both the car and driver in a minimum amount of space. The heart of The Maxx is the world's smallest micro-electronic remote transmitter made of Delrin. It's so small it attaches to your key ring and fits into your pocket.

The Maxx uses a single button to control three separate functions on each of the nine channels.



Keepsafer Wireless System by Schlage

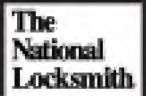
The Keepsafer Wireless Electronic Security System is a complete home security system using advanced wireless technology, manufactured and marketed by Schlage. The system protects against break-in, fire, and medical emergencies.

The Keepsafer uses a programmable control console and transmitter/sensor sets and includes the only over-the-counter emergency dialer option. A digital keypad on the control console operates similar to a microwave oven, and the console operates on household current.



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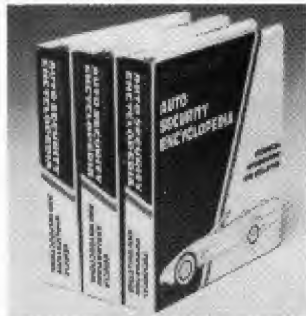
[Click here for more information](#)



Scosche's Auto-security Update

Scosche Industries, the autosound manufacturing and publication firm announced that the auto-security research information for 1988 and 89 vehicle models is in, and the update is ready to go. The security update slips into the Scosche Autosecurity Encyclopedia, and you get the update at no additional cost.

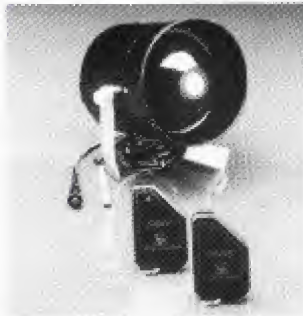
Several years ago Scosche anticipated the inherent problems associated with alarm system installations and assembled this encyclopedia.



Serpico SP-2 Remote System

The Serpico SP-2 Remote Control Security System is designed for the professional installer that seeks an entry level system which is able to be expanded into a top-of-the-line system. Modularity and ease of installation are the key words of the Pro-Line series.

The Serpico Pro-Line series model SP-2 comes packed with two anti-scan transmitters, an L.E.D. armed status indicator, mounting bracket, hardware, connectors and a full wiring harness.



Speco Presents Auto Sentry AA-300

Speco introduces the Auto Sentry AA-300, a remote control universal current or switch sensing alarm system.

Some of the features of this alarm system are: two FCC approved remote controls (dip switch programmable), high powered compact 25 watt 120 dB siren, remote panic switch, audible and visual arm and disarming indicators, automatic arming, and last door arming. The AA-300 alarm system also includes a motion detector, all necessary hardware and provisions for battery back up siren and door lock interface.



Titan Sentry's Full Chip Design

With all functions fully integrated into its U.S. engineered and manufactured custom chip, the new Titan Sentry MS/3000 series is a powerful, advanced-technology security system from Titan Security, Inc.

It is also designed to be a self-monitoring, self-diagnostic system with high reliability and capable of providing up to 256 remote operated functions (including many home and household uses).

The compact command module is self-contained to provide a wide array of desirable remote and system functions.



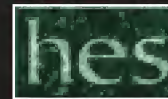
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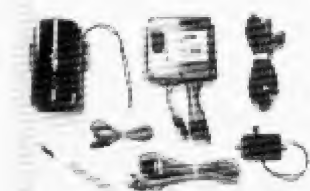
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ThugBug's Avenger 1001

The Avenger 1001 Vehicle Security System from ThugBug Auto Security Systems offers installation and system flexibility. With the Avenger 1001 and convenient plug-in accessories you can satisfy all of your alarm system needs.

Features include: passive arming (+ 12 volts) through ignition switch, ground arming (- 12 volts) through steel cable hook lock and fender key, adjustable entry time 0-25 seconds and many others.



Autosafe's AS-1 With 'Chirp'

The new Autosafe AS-1 from Autosafe Electronics includes a safety "Back Up Chirp" which may be added or deleted via the system's two remote transmitters. The AS-1 system also has a pulsed output for flashing lights which can be used instead of the chirp for arm and disarm.

Other features include remote panic, starter disable, and leather pouches for the two transmitters. Along with a limited lifetime warranty, the AS-1 is made in the U.S.A.

Code-Alarm Adds To XT System

Code-Alarm, Inc.'s new XT Plus vehicle alarm system allows a wide range of features to be added to the system without the inconvenience and expense of purchasing additional modules.

The new XT Plus is designed to prolong the life span of the system by enabling it to remain state-of-the-art. The system can be programmed to remote control a wide range of electronically activated features, such as electronic windows, sun roofs and sensors.



Starter Kill From Harrison

Harrison Electronics' 7828 Starter Kill stops the thief who attempts to steal with a stolen key or by hot wiring. The "kill kit" is a simple-to-install starter disabling device which qualifies for comprehensive insurance discounts.

The Harrison Starter Kill features automatic passive arming with ignition key and two-step disarming with ignition key and a unique hidden pressure switch. A valet override switch and all necessary hardware are included. The Starter Kill can be used alone or with any Harrison alarm system.

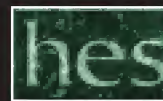


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The Code-Alarm System 2000

"The new home security system 2000 features the first multi-purpose transmitter for home and vehicle. It has an "intelligent" command console."

Code-Alarm, Inc. has introduced their System 2000, the latest home security device. "System 2000 utilizes a new multi-purpose transmitter which controls both System 2000, for home security and Code-Alarm's XT or new Night Hawk for vehicle security. This is accomplished without sacrificing the unique features of either unit," said Geoff Dixon, national marketing manager for Code-Alarm.

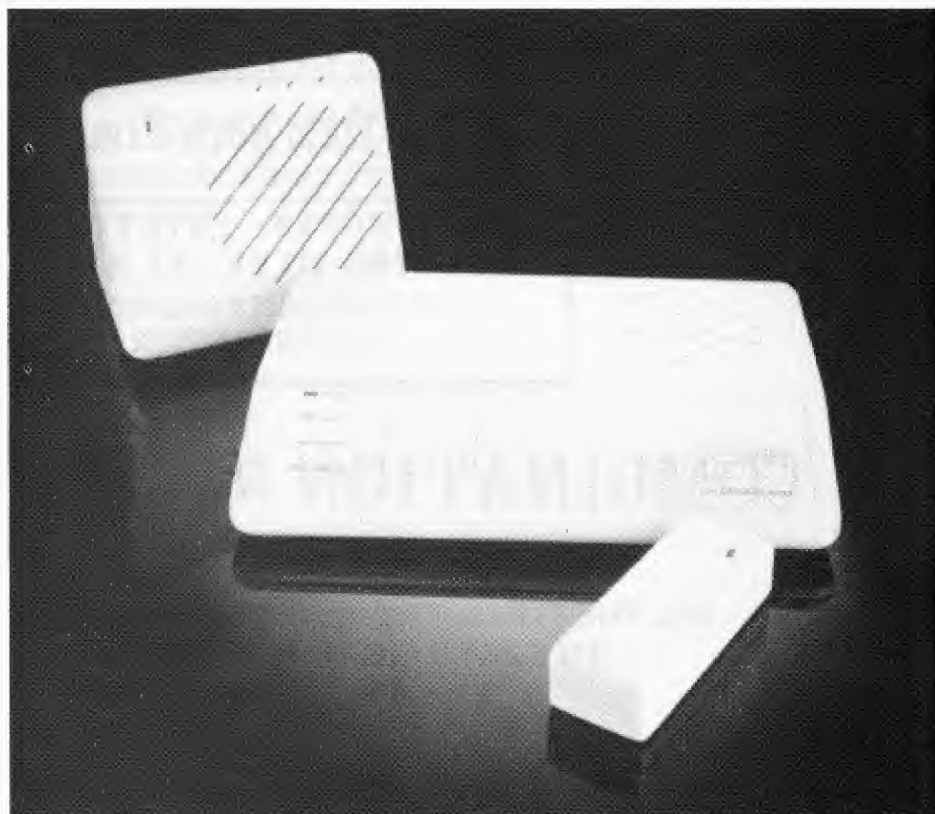
The new home security System 2000 features the first multi-purpose transmitter for home and vehicle. It has an "intelligent" command console capable of electronically learning up to twelve door and window codes and four control transmitter codes. It also has complete audible and visual status lights to indicate the system is armed, disarmed, or tripped.

A panic mode can be activated from either the command console or the remote control transmitter. The system also features a built-in, electronic siren. A short chirp in the "Day Mode," while the system is disarmed indicates that doors or windows are being opened. A sensor lockout prevents the system from being electronically scanned and violated. And a trip I.D. mode will determine the intrusion point which triggered the alarm.

Here is a list of some of the system's features along with an explanation of what they mean:

The System 2000 from Code-Alarm incorporates their exclusive Scan Deterrent Circuitry. The System 2000 represents state-of-the art wireless home security technology but remains simple to install. Utilizing microprocessor technology, the System 2000 features:

Scan Deterrent/Self Diagnostics, which put an end to the guesswork of whether the system is operating properly while also eliminating "frequency scanning." This feature eliminates the possibility of stray RF signals disarming the system. The multi-purpose



The system 2000.

transmitter, allows complete operation of both a System 2000 and a Code-Alarm XT or Night Hawk vehicle security system without sacrificing any of the unique features of either system; all this from the same hand-held remote control transmitter.

The system has an intelligent command console capable of electronically learning multiple codes (up to 12 door/-window transmitters and 4 control transmitters) eliminating the need to manually code additional transmitters. Complete audible and visual status indicators indicate system armed, disarmed or system tripped.

Panic is a feature that can be activated from either the command console or the remote control transmitter. A built-in ear piercing electronic siren is more effective than a weak sounding buzzer. The trip I.D. feature indicates which sensor was the last to activate the

system. Day Mode feature provides a short chirp while the system is disarmed to indicate doors and windows being opened.

Sensor lockout is a unique feature that stops a faulty sensor from being a nuisance. While the system is armed, only two trips are allowed from any single sensor. After the second trip, that sensor is locked out until the system is disarmed and rearmed. There is also, complete battery back-up.

Options available include a high power remote wireless siren for placement in remote areas without having to run wire. This includes battery back-up. Extra control transmitters and extra door/window transmitters are also optional.

For more information contact: Code-Alarm, Inc., 950 E. Whitcomb, Madison Heights, MI 48071, 1-800-421-3209. ■

Schlage Interchangeable Core

"The beauty of the Schlage core system is that keying and pinning is done no differently than on any other Schlage cylinders...same spaces, depths and pins."



Send your lock and key questions to Jack Roberts, The National Locksmith, 1533 Burgundy Parkway, Streamwood, IL 60107.

by Jack Roberts

The request was simple enough. "Make this key fit this lock." It's something that all of us do, sometimes several times a day. The only problem was, the key was a Schlage "E" and the lock was a Unican 1000 with a Schlage "CE" I/C cylinder. (See photograph 1.) "No problem, Dan, I said, "do you have the control key?" Lots of things were running through my pin-sized



1. Unican 1000 with Schlage CE I/C cylinder.

brain at that moment, like where am I going to find an E I/C? What if there is no control key available? How much time do we have to accomplish this change?

I recalled an I/C briefing conducted by Mike Finn at one of our recent ALOA Chapter meetings. Mike had ordered several different cylinders for this class, one of which was a Schlage, and it did seem to me that it was an "E" keyway. While the 'ole brain was tumbling and shifting gears Dan handed me what turned out to be a master key.

The 1000 was from a large hospital complex, and Dan is the Chief of Security who is responsible for *all* lock

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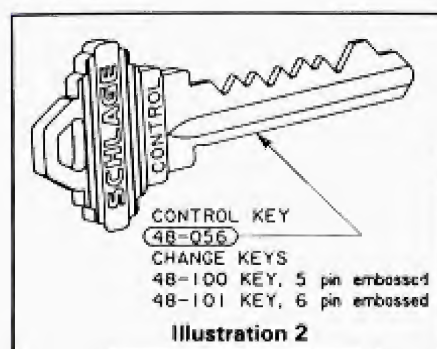
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and key records and maintenance including file cabinets, desks, narcotic lockers, etc. All work orders, even a request for one key, go through the system, wind up on his desk and eventually in our shop. There are six different master key systems in the hospital complex and the 1000 had been installed by the building contractor on a door in a new building. Easy enough, except that it had been keyed to the wrong system.

I briefly explained the I/C (interchangeable core) principle to Dan and told him that there had to be a control key, somewhere. I made a copy of his master key and told him to conduct a search for the control key. This was a delaying tactic to allow us time to give Mike a call and see if the Schlage I/C he had used in the class was indeed an "E." It was, he was happy to sell it to us, and there was time enough to get it shipped so that we could have it the next day.

We reviewed our notes from the I/C briefing on how to make a control key from an operating key and by the time Dan called to tell us that there wasn't anything that resembled a control key in his key file, we had the "CE" out of the lock and told him that he could have the unit by noon tomorrow.

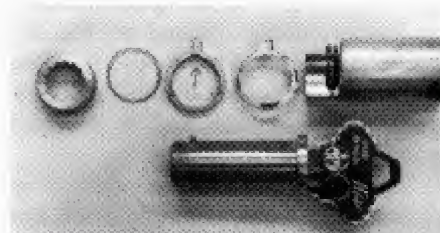
The beauty of the Schlage I/C system is that keying and/or pinning is no different than on any other Schlage cylinders; same spacings, same depths and same pins. There are no complicated formulas for adding up pin stacks, and there is no need for concern about creating a change key that will interchange with the control key. The control key is a special blank, Schlage Part #48-056, (see illustration 2) which is duplicated from the master, or from any key in the system that is so designated.



The control blank is a bit longer than a regular 6 pin Schlage, almost like a 6½ pin blank, and the extended tip is cut to a #5 depth. There is a built-in spring-loaded engaging pin in the end of the plug which rides up the slope of

the control cut and engages a notch in the unlocking arm. (See photograph 3.) The tip of the unlocking arm rides in a slot in the spring-loaded retaining pin. A clockwise turn of about 15 degrees with the control key retracts the retaining pin for removal of the core. (Note here that the engaging pin in the plug is spring-loaded and will push the control key out of the plug about .077" if inward pressure is not applied when using the control key.)

All components of this easy-to-use system are shown in photograph three and illustration four. It is easy-to-use, that is, if one has a control key.



3. Arrow indicates spring-loaded engaging pin.

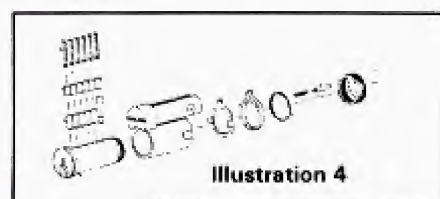
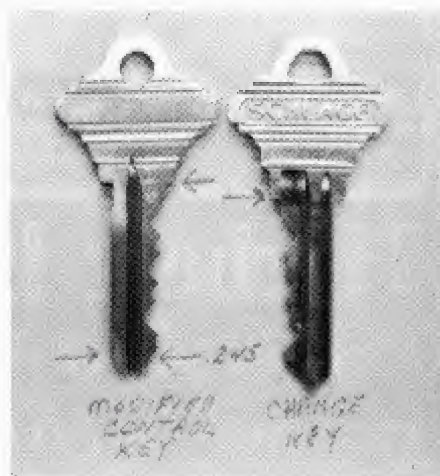


Illustration 4

Reviewing our notes from Mike's I/C briefing, we found that a control key can be made from any operating key. We had a copy of the master key so the first step was to prepare a "CE" blank. Since the Schlage spacing from cut to cut is 0.155, we divided by 2 and came up with 0.077 and cut the shoulders back by that amount, creating a 6½ pin blank.

Next, we made a #5 cut at the tip, and then duplicated the master key on this prepped blank. Bingo, we have a control key (see photograph 5), and the "CE"



5. Modified control key.



6. The right way to place the control arm on the core...

I/C slid right out of the 1000. The "E" I/C was delivered the next morning and was quickly pinned to the key which Dan had given us the previous day. We had already created a control key from that one and it operated perfectly.

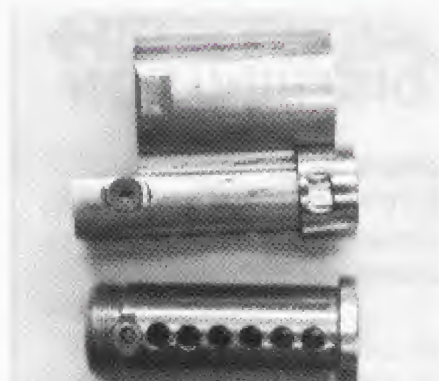
There are only a couple of tricks in disassembly and reassembly. First, the plug must be removed (or backed out slightly), before the unlocking arm and shield guard can only be removed or replaced. Second, the unlocking arm must be installed with the little notch looking at you. Photographs six and seven show the right and wrong way of



7. ...and the wrong way.

placing the control arm on the core. That's about all there is to it. The retaining pin and the engaging pins are staked in place, and removal of these parts is not necessary and should not be attempted.

A control key is not necessary for insertion of the I/C core since there is a slight taper in the face of the cylinder opening which allows the spring-loaded retainer pin (*see photograph 8*) to compress when the core is pushed into the cylinder. Also, a control key is not necessary for removal of the core from a rim or mortise cylinder. With either of these cylinders in hand the retainer pin can be seen through a small



8. Spring-loaded retainer pin.

hole at the rear of the cylinder and can be compressed with your favorite straightened out paperclip.

Anyway, a phone call to Dan quickly had a messenger in the shop to pick up the 1000 and we received the usual plaudits for a job well done. This was our first experience with the Schlage I/C and, more than anything else, it typifies the value of constant education, attendance of local Chapter and/or Association meetings and the sharing of knowledge within our industry. If you don't belong, join and attend. It could mean dollars in your pocket. ■

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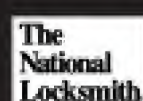
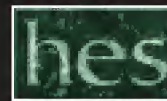
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High Tech's Model 1700

"This eighteen piece tool set and auto lock service encyclopedia is designed to keep the locksmith on top of the auto lock service field."

The physical security industry is an ever changing field. New and innovative items are introduced into the market almost daily. In order to keep up with this barrage of information, and maintain a competitive edge the security specialist must spend a great amount of time both in research and study.

Perhaps the most rapidly changing facet of the security industry involves the automotive lock service field. Automobile manufacturers work feverishly to devise new and increasingly difficult methods of protecting their customers from an ever-rising theft rate. Such items as shielded lock mechs-

anisms and high security keys are becoming more and more commonplace in newly manufactured auto-mobiles.

When dealing with cars, it can be safely said that the most important items a security specialist needs are proper tools and even more importantly the correct information to use these tools. Where can a locksmith turn to find out this usually classified and hard to find information?

High Tech Tools, based in Miami, Florida has developed a complete system to cover the auto security specialist. This system is called the Model 1700 Auto Lockout Set. This eighteen

piece tool set and auto lock service encyclopedia is designed to keep the locksmith on top of the auto lock service field. Designed to cover every aspect of auto lock service, the Model 1700 is truly the answer to many questions and problems a locksmith may have in this fascinating and ever changing field.

Some may ask "why so many tools?" High Tech's approach to unlocking cars is quite unique. The tools are designed for the individual car. They literally fall into place when inserted into the vehicle. This means that most vehicles can be opened in seconds with no probing or time consuming



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exploration.

If the heart of the Model 1700 are the tools, the brain is the Auto Lock Service Encyclopedia. This Encyclopedia is a complete reference guide which includes their auto lockout manuals and sections on key blank information and illustrations, reference code locations, HPC 1200 CM Code Card Numbers, steering column service, glove and trunk lock service, door lock service, vehicle identification reference, plug rotation information, a complete VATS reference guide, key blank numbers, replacement locks and much, much more.

To give you a better idea how the information and the tools in this set might be used let's look at a scenario of the average day in the fictitious company, Joe's Lock and Key Service.

About mid-morning Joe was getting ready for some important business he had at the bank. The phone rings and he answers a call for lockout service on an '89 Beretta. He logs it in and checks the roster to see who's available. Everyone is out except Alex. Joe never used to send Alex out on calls because Joe always ended up having to go out himself. Lately though, Alex has had a

much higher success rate due to the new High Tech System that uses correct tools coupled with correct information.

Even though the Beretta is a difficult job, Joe assigns it to Alex and hopes there are no problems. The first thing Alex does is look up the Beretta in his Auto Lock Encyclopedia. He can't remember exactly what the car looks like and it is parked in an eight story parking garage. He finds the car and not only sees the picture but all the pertinent information needed for almost any type of problem he may encounter. For example, he sees the key blank reference number and checks the back of the truck and find he doesn't have one. He immediately adds a few to his truck so that he will not be caught unprepared.

He looks at the series of drawings and the pictures of the tools he will have to use. In this case it's the new ten second Beretta tool. Armed with the confidence that he knows how to handle the Beretta, he hops in the truck and in a few minutes he has found the car with absolutely no problem. Alex has a very good idea of how to open the car since he's already reviewed it in the

Encyclopedia. He feels that the illustrations will be enough so he takes out the Mini-Manual and inserts the tool as shown (see illustration 1 and photograph 2.) Since the tool is designed to lay on the door ledge at the rear corner,

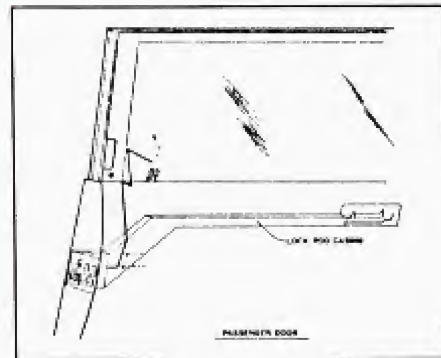


Illustration 1



2. Beretta latch mechanism.



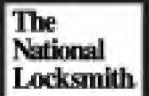
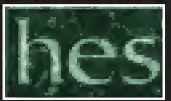
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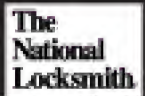
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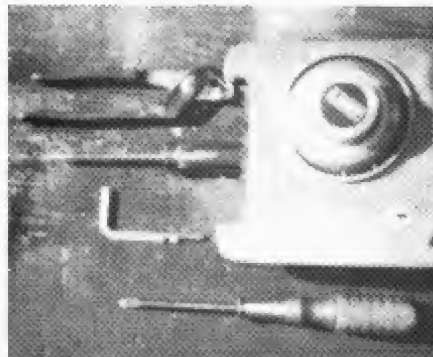
Safe Service Tips

"This article refers to key change combination locks only, and what is often *not* done by the person who is changing the combination."



by Dale Libby

I know that most of our readers already know how to change the combination of a safe lock, especially when the lock is a key change variety, rather than a hand change type. This article refers only to key change combination locks, and what is often



These are some of the tools that should be used when changing a "key change" combination lock in addition to the correct "change key".

not done by the person who is changing the combination.

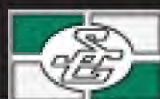
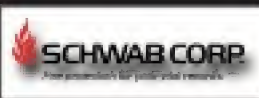
I am not referring to basic errors, like putting the last number between zero and twenty on a correctly handed lock and spline, in the so-called forbidden zone. Nor am I talking about not setting the combination so that it works one-half number above and below (if possible) the correct combination.

All these things must be taken into account when changing both hand and key type combination locks. I am talking about taking a short-cut when working on key change locks that if not corrected, will eventually cause a



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lockout. I want to stress close inspection of the lock and all its internal parts when changing combinations.

The usual procedure for changing a combination lock that is key operated is to dial the existing combination to the change index (which is sometimes the zero index) which is about eight numbers to the left (or right) of the opening index, prying a plug or cover off the back of the safe door, inserting the correct change key, turning it a quarter turn, dialing the new combination to the change index, turning back and withdrawing the change key. Then hopefully, the combination is tried at least three times while the door is open; once right on the mark, once 1/2 number above the new combination, and once 1/2 number below the combination. Then you generally have the customer try the combination a couple of times, give him your bill, and leave. Approximate time for this service is about 10 minutes.

I do not do this on a new safe that I have never worked on before. If I change the combination at least once a month (and I do for several theaters in my area), then the above procedure is correct. On any new safe that I work on

for the first time, be it hand change or key change lock, I do a complete tear-down of the lock (not taking the wheel pack off, usually). This is for my protection, and ultimately your protection too.

Here is my reasoning. The customer is asking you to change the combination of the lock, and you are putting your reputation as well as expertise on the line. He wants a lock that is working correctly and that will not malfunction. An ounce of prevention is worth a pound of cure.

I have heard experiences where about two weeks after a technician changed combinations on some locks, those very same locks would cause a lockout. He then blamed the customer for not purchasing a new lock when he told them they should have. Not only does he end up selling them a new lock, but he also charged exorbitant rates for opening the locked safes with the "bad" locks or "out of tolerance" locks. He was proud of all the locks he had to change in a year. I myself, am happy to have most locks I work on to be operating correctly, and not having to change them. To each, his own.

When I go out to change a combina-

tion lock (a key change lock), I explain to the customer that I will have to completely tear down the lock and the safe door to do a total inspection of the unit, and that they will have to pay extra for it, on top of the charges for changing the combination. Usually this is only \$10 more than the charge for changing the combination. I tell the customer that this is for his benefit, and mine. I stand behind my service work providing free labor to put the lock right if it should ever mess up after I have changed the combination, as long as no one else tries to change the combination that is not from my company. If the customer does not want the lock inspected, then I write "No Guarantee" on the invoice, but I check the lock anyway.

Most of the static I get from the customer is from district or area managers who want to change their own combinations and do not want to pay a locksmith/safeman to do what is so simple. They never check the lock for any malfunctions. They only read from their manuals, insert their keys, and leave. One of the most popular calls I get from managers that change their



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own combinations is a 'lost combination' call. This is a straight \$75 fee if the safe door is open. The manager will change the lock combination and when he is done tries it for the first time, the lock does not work and withdraw the combination lock bolt. Since he does not know how to take apart the lock and determine what the combination is, he is stuck. If the door is locked shut, then a regular opening fee is levied. After this, most managers and district managers, are only too happy to have a competent person change their safe combinations.

Well, now that I have mentioned what not to do, I will explain the procedures that I use when changing a key-type safe combination lock.

First, take the cover to the back door or back of the safe door off to expose as much of the lock, boltwork, and relockers as possible. This may mean taking off as many as twelve screws, but it's necessary. Next, tighten all nuts, bolts, screws, relocking devices, and lubricate all parts with a suitable lubricant. Be sure to check that relockers are set correctly.

Remove the back cover to the lock itself, testing any relocking devices and triggers attached. Once you have the back cover off the combination lock, there are several things that should always be checked: 1. Tighten the four corner screws that hold the lock to the mounting plate of the combination lock. This is very important. If the lock

is loose on the mounting plate, it may work the combination correctly, but there is a good possibility that the relocking devices may be set off when the safe door is slammed.

2. Check for proper tightness of the lever screw if it has one. Do not over-tighten this screw. Then check that the lever goes up and down under proper spring pressure and does not bind in any position.

3. Visually check the rest of the lock as you turn the dial. Pick one spot where you can see the gates of the wheels align, and turn the dial until the number one gate stops. Then reverse the direction and align the number 2 wheel, and repeat with the number 3 wheel. You are checking to see that none of the wheels grab its adjacent wheel and that there are no burrs on any of the wheels. You are also checking for wheel creeping, proper wheel pack friction, and wobble in the wheels.

4. Check for any relock triggers and make sure they are in proper working order.

5. Remove the spline key and remove the drive cam and check for tightness of the dial ring after removing the combination spindle. This is important, but this step can be omitted if the dial ring is tight as tested from the front of the safe. I usually do this so I can also lubricate the spindle bearing area on the dial ring as well as tightening the dial ring.

6. After lubricating the dial, lubricate and replace the drive cam and spline key if needed. Then check the spindle and cam for tightness and see that the dial spindle does not move. If it does, a new spline key is needed.

Now that we have checked the lock visually and physically, and have made any changes or repairs to the lock itself, it is time to change the combination. Put the back cover on with screws and change the combination accordingly. Test it several times, and when it is working perfectly, then it is time to put everything back together and collect your money.

The charge for changing a combination in my area is about \$28.50 for a key combination change, \$30 and up for a service call depending on how far I have to drive, and \$10 to \$20 for tear down of the door. It may seem like a lot to some customers, but my regular customers like the way I change combinations, because they always work, and work well. A good job is the best advertising you can have. ■



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Dissolving Superglue In Locks

"Opening glued locks has required mechanical and often destructive methods. Now there is a way to rapidly open glued locks with no damage to the lock."

A simple and easy method for releasing a lock that has been vandalized with superglue has been developed by a Sandia National Laboratories scientist. It could prove broadly useful in civilian and national security applications. The method dissolves the glue with hot acetone channeled into the lock on a tiny heated probe. It requires 20 minutes or less, consumes little solvent, and requires only a small amount of electrical power.

Superglues—cyanoacrylate adhesives—rapidly form extremely strong bonds between smooth surfaces. They are used widely for household repairs and for more exotic applications such as surgical bonding of artificial joints.

Unfortunately, vandals and persons protesting against military bases have also used superglue to disable locks in buildings, at padlocked gates, and in car doors.

Opening glued locks has required mechanical and often destructive methods. Padlocks can be cut off. Some door locks can be removed by drilling out their mounting bolts. Glued car doors requires gaining access to the car's interior, taking apart the door, and removing the lock. High-security locks require even more destructive and time-consuming methods. Sandia sought to devise a way to rapidly open glued locks by a nondestructive chemical means.

A tube of superglue contains a polymer—typically $\text{CH}_2\text{C}(\text{CN})\text{CO}_2\text{CH}_3$ —that rapidly polymerizes (forms a long chain of units) upon contact with many surfaces and forms a strong bond. Such linear polymers can be dissolved by solvents, but the dissolution can be extremely slow. Getting the solvent inside the lock is difficult.

"The problem of opening a superglued lock reduces to finding a good solvent and a good method of getting the solvent into the lock," says Paul A. Cahill, the Sandia scientist who took on the challenge.

Solvents useful in dissolving cyanoacrylates from surfaces have been reported. Cahill, a chemist in



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Sandia's Chemistry of Organic Material Division, tested a number of them and found them to be ineffective in releasing glued locks. They were either too slow in dissolving the glue (more than 24 hours) or they did not penetrate the lock sufficiently. Cahill found, however that by heating a solvent, acetone, with a special miniature heater inserted inside the lock, the glue can be dissolved and flushed from the lock within several minutes.

The miniature heater is essentially a sturdy metal probe about 1 millimeter in diameter of which only the last one inch is heated, either by a DC power supply, AC supply, or even a battery. A small pump causes acetone to flow at a steady rate (5 milliliters per minute) along the heater probe and into the lock. A thermocouple inserted into the lock is used to adjust the heater power to maintain an acetone temperature near 50° C (122° F). The heat is the key says Cahill. At room temperature the acetone takes 16 to 24 hours to dissolve the superglue. But at 50° C, just under the 56° C boiling point of acetone, the acetone does the job quickly.

"After approximately 10 minutes, the heater is removed and the key is inserted," reports Cahill. "The lock

usually opens; if it does not, the procedure is continued. All locks opened in Sandia's experiments within 20 minutes."

Cahill says heating the acetone is much more effective than trying to heat the lock, because it requires less power and less time to dissolve the glue. In addition heating the lock is impractical in many cases. He also found that heating the lock to greater temperatures is ineffective. The glue loses its adhesive properties (at about 140° C), but it nevertheless simply rehardens and plugs the lock.

The inexpensive heater probe was obtained from a commercial manufacturer, ARI Industries, Inc., Addison, Illinois. Cahill says he could find no

other source of a heater the right shape and size.

Cahill says his research proves the laboratory concept. He has proposed an integrated design that would combine the heater and the acetone tubing into a single probe, but as yet no engineering work has been done to make the integrated package. But he sees no major difficulties. "This method is easily adapted to field use and should find wide civilian and national security applications."

Sandia National Laboratories is operated for the U.S. Department of Energy by AT&T Technologies, Inc. Its major facilities are in Albuquerque, New Mexico, and Livermore, California. ■



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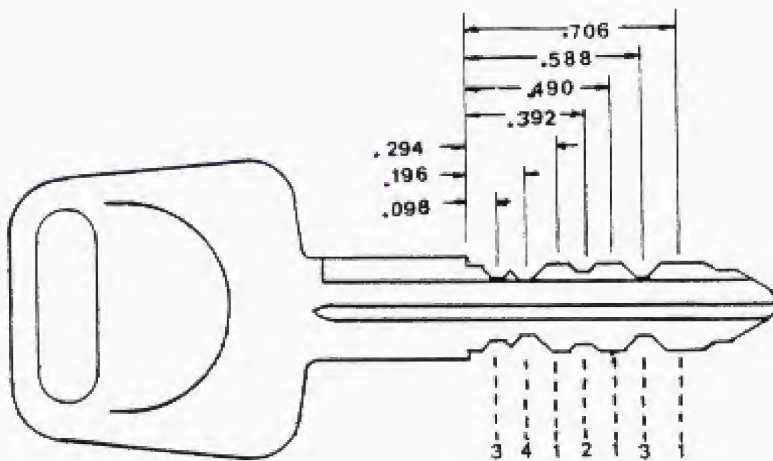
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Hyundai Sonata Codes

Y1001-2000

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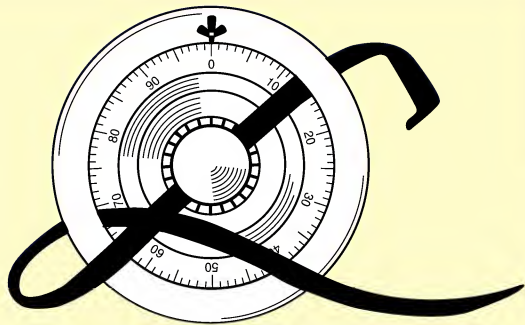
DEPTHS

0 -	5 -
1 - 0.283	6 -
2 - 0.263	7 -
3 - 0.243	8 -
4 - 0.223	9 -

KEYWAYS

HPC/Silca	HYN4
Taylor	X187
Curtis	HY-3

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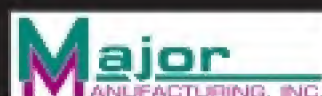
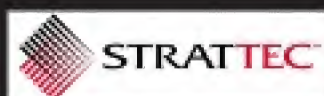
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1001	1051	1101	1151	1201
01 4434323	51 4421132	01 4341243	51 4322141	01 4243341
02 4434233	52 4414332	02 4341232	52 4322123	02 4243314
03 4434211	53 4414312	03 4341214	53 4322112	03 4243233
04 4434121	54 4414213	04 4341133	54 4321434	04 4243213
05 4433423	55 4414123	05 4341122	55 4321421	05 4243141
06 4433243	56 4413432	06 4334421	56 4321344	06 4243123
07 4433232	57 4413412	07 4334324	57 4321324	07 4243112
08 4433214	58 4413322	08 4334243	58 4321311	08 4242421
09 4433131	59 4413243	09 4334232	59 4321234	09 4242331
10 4433113	60 4413232	10 4334214	60 4321211	10 4242311
11 4432422	61 4413214	11 4334131	61 4321144	11 4242234
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14 4432314	64 4412431	14 4332421	64 4314412	14 4241422
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17 4432134	67 4412321	17 4332241	67 4314234	17 4241314
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Y1001-2000 HYUNDAI

Keyblanks:

HPC/Silca HYN4
 Taylor X187
 Curtis HY-3

1251	1301	1351	1401	1451
51 4231322	01 4212332	51 4133413	01 4121423	51 3441234
52 4231243	02 4212314	52 4133242	02 4121412	52 3441221
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82 4214332	32 4142143	82 4124114	32 3443421	82 3414331
83 4214314	33 4142132	83 4123441	33 3443324	83 3414241
84 4214233	34 4142114	84 4123423	34 3443243	84 3414142
85 4214213	35 4141423	85 4123412	35 3443232	85 3413431
86 4214141	36 4141342	86 4123324	36 3443214	86 3413321
87 4214123	37 4141322	87 4123311	37 3443131	87 3413141
88 4214112	38 4141241	88 4123234	38 3443113	88 3412443
89 4213434	39 4141223	89 4123221	39 3442422	89 3412331
90 4213421	40 4141212	90 4123144	40 3442343	90 3412131
91 4213344	41 4141124	91 4123131	41 3442332	91 3411341
92 4213322	42 4134423	92 4123113	42 3442314	92 3411312
93 4213243	43 4134342	93 4122431	43 3442233	93 3344311
94 4213232	44 4134322	94 4122411	44 3442211	94 3344223
95 4213214	45 4134243	95 4122334	45 3442134	95 3344131
96 4213142	46 4134232	96 4122321	46 3442121	96 3343211
97 4213124	47 4134214	97 4122143	47 3441432	97 3343112
98 4212442	48 4134133	98 4122132	48 3441412	98 3342421
99 4212424	49 4134122	99 4122114	49 3441324	99 3342131
00 4212343	50 4133431	00 4121441	50 3441311	00 3341411



Y1001-2000 HYUNDAI

Keyblanks:

HPC/Silca HYN4
 Taylor X187
 Curtis HY-3

1501	1551	1601	1651	1701
01 3341231	51 3221331	01 3112231	51 2421424	01 2342134
02 3341121	52 3221241	02 2443411	52 2421343	02 2342114
03 3324241	53 3214331	03 2443314	53 2421323	03 2341434
04 3324131	54 3214223	04 2443141	54 2421244	04 2341414
05 3323141	55 3213431	05 2443112	55 2421213	05 2341324
06 3322441	56 3213321	06 2442311	56 2421141	06 2341243
07 3322311	57 3213141	07 2441431	57 2421121	07 2341223
08 3321411	58 3212441	08 2441334	58 2414341	08 2341144
09 3321231	59 3212331	09 2441211	59 2414321	09 2341124
10 3321121	60 3212241	10 2434431	60 2414231	10 2334423
11 3314341	61 3211341	11 2434334	61 2414141	11 2334412
12 3314211	62 3211312	12 2434321	62 2414121	12 2334324
13 3314112	63 3144331	13 2434231	63 2413441	13 2334243
14 3313241	64 3144241	14 2434141	64 2413421	14 2334232
15 3312411	65 3144142	15 2434121	65 2413324	15 2334214
16 3312231	66 3143431	16 2433441	66 2413243	16 2334142
17 3312121	67 3143321	17 2433423	67 2413223	17 2334122
18 3311421	68 3143141	18 2433243	68 2413144	18 2332441
19 3311223	69 3142443	19 2433232	69 2413124	19 2332423
20 3244343	70 3142331	20 2433214	70 2412424	20 2332412
21 3244321	71 3142131	21 2433124	71 2412343	21 2332324
22 3244211	72 3141341	22 2432424	72 2412323	22 2332241
23 3244121	73 3141312	23 2432343	73 2412244	23 2332144
24 3243441	74 3134431	24 2432332	74 2412213	24 2332124
25 3243241	75 3134321	25 2432314	75 2412141	25 2331431
26 3243131	76 3134141	26 2432231	76 2412121	26 2331413
27 3242411	77 3133441	27 2432143	77 2411441	27 2331321
28 3242323	78 3133221	28 2432123	78 2411421	28 2331244
29 3242231	79 3132341	29 2432112	79 2411344	29 2331224
30 3242141	80 3132211	30 2431423	80 2411243	30 2331143
31 3242112	81 3132112	31 2431344	81 2411223	31 2331132
32 3241421	82 3131412	32 2431313	82 2411212	32 2324433
33 3241241	83 3131221	33 2431241	83 2344332	33 2324413
34 3241131	84 3131122	34 2431221	84 2344314	34 2324341
35 3234241	85 3124311	35 2431133	85 2344213	35 2324323
36 3234131	86 3124221	36 2424421	86 2344134	36 2324244
37 3233141	87 3123411	37 2424313	87 2344114	37 2324213
38 3232441	88 3123231	38 2424234	88 2343434	38 2324141
39 3232311	89 3123121	39 2424131	89 2343421	39 2324121
40 3232131	90 3122423	40 2423431	90 2343342	40 2323443
41 3231341	91 3122311	41 2423411	91 2343311	41 2323432
42 3231211	92 3121341	42 2423323	92 2343234	42 2323414
43 3224431	93 3121312	43 2423244	93 2343221	43 2323324
44 3224334	94 3114431	44 2423213	94 2343131	44 2323241
45 3224233	95 3114321	45 2423141	95 2342431	45 2323144
46 3224211	96 3114132	46 2423121	96 2342411	46 2322433
47 3224121	97 3113412	47 2422441	97 2342334	47 2322411
48 3223423	98 3113221	48 2422344	98 2342321	48 2322334
49 3223243	99 3112122	49 2422311	99 2342233	49 2322141
50 3221441	00 3112334	50 2422131	00 342211	50 2321441



Y1001-2000 HYUNDAI

Keyblanks:
HPC/Silca HYN4
Taylor X187
Curtis HY-3

1751	1801	1851	1901	1951
51 2321423	01 2241123	51 2144121	01 2123213	51 1441221
52 2321344	02 2234431	52 2143441	02 2124141	52 1441124
53 2321313	03 2234411	53 2143421	03 2124121	53 1434331
54 2321241	04 2234334	54 2143324	04 2123443	54 1434243
55 2321144	05 2234321	55 2143243	05 2123423	55 1434221
56 2321124	06 2234233	56 2143223	06 2123344	56 1433431
57 2314421	07 2234211	57 2143144	07 2123311	57 1433231
58 2314331	08 2234134	58 2143124	08 2123234	58 1433143
59 2314311	09 2234114	59 2142424	09 2123133	59 1433123
60 2314234	10 2233441	60 2142343	10 2122433	60 1433112
61 2314214	11 2233423	61 2142323	11 2122311	61 1432423
62 2314131	12 2233243	62 2142244	12 2122334	62 1432313
63 2313424	13 2233214	63 2142213	13 2122141	63 1432241
64 2313341	14 2233124	64 2142141	14 2121443	64 1431433
65 2313312	15 2232413	65 2142121	15 2121423	65 1431343
66 2313224	16 2232341	66 2141441	16 2121412	66 1431323
67 2313143	17 2232143	67 2141421	17 2121324	67 1431231
68 2313132	18 2232114	68 2141344	18 2121234	68 1431123
69 2313114	19 2231434	69 2141243	19 2121142	69 1424413
70 2312441	20 2231414	70 2141223	20 2114423	70 1424341
71 2312421	21 2231324	71 2141212	21 2114412	71 1424321
72 2312331	22 2231243	72 2141124	22 2114324	72 1424224
73 2312311	23 2231214	73 2134423	23 2114234	73 1424143
74 2312234	24 2231131	74 2134344	24 2114214	74 1424121
75 2312133	25 2214431	75 2134313	25 2114142	75 1423443
76 2311433	26 2214411	76 2134241	26 2113433	76 1423421
77 2311343	27 2214334	77 2134221	27 2113343	77 1423243
78 2311332	28 2214314	78 2134133	28 2113321	78 1423221
79 2311314	29 2214231	79 2133431	29 2113244	79 1422433
80 2311233	30 2214143	80 2133411	30 2113134	80 1422413
81 2244324	31 2214123	81 2133224	31 2112441	81 1422341
82 2244241	32 2214112	82 2133143	32 2112421	82 1422321
83 2244133	33 2213434	83 2133132	33 2112344	83 1422123
84 2243433	34 2213414	84 2133114	34 2112243	84 1422112
85 2243413	35 2213313	85 2132441	35 2112214	85 1421423
86 2243341	36 2213241	86 2132421	36 2112124	86 1421313
87 2243314	37 2213144	87 2132331	37 1443324	87 1421223
88 2243231	38 2213124	88 2132311	38 1443243	88 1414423
89 2243143	39 2212413	89 2132234	39 1443223	89 1414313
90 2243123	40 2212341	90 2132133	40 1443133	90 1414223
91 2243112	41 2212143	91 2131433	41 1442433	91 1413433
92 2242414	42 2212114	92 2131343	42 1442411	92 1413343
93 2242313	43 2211434	93 2131332	43 1442334	93 1413321
94 2242133	44 2211414	94 2131314	44 1442314	94 1413212
95 2241431	45 2211331	95 2131233	45 1442213	95 1412443
96 2241411	46 2211241	96 2131132	46 1442141	96 1412421
97 2241334	47 2144341	97 2124424	47 1442121	97 1412243
98 2241314	48 2144321	98 2124343	48 1441423	98 1411433
99 2241231	49 2144231	99 2124323	49 1441324	99 1411323
00 2241142	50 2144141	00 2124244	50 1441241	00 1344313

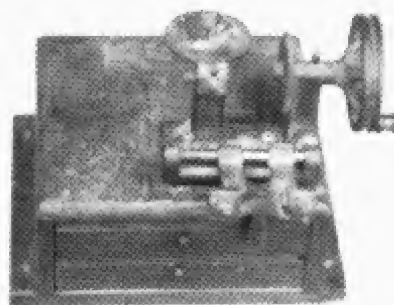
Shop Talk

Helpful Questions and Answers

Written by *all* of the following authors: Don O'Shall, Robert Sieveking, Dale Libby, Dave McOmie, Jack Roberts and Shirl Schamp.

Send your locksmith questions, along with a self-addressed stamped envelope to: Shop Talk, The National Locksmith, 1533 Burgundy Pkwy., Streamwood, IL 60107.

Boy, *Shop Talk* readers are an amazing bunch. If we don't know the answer to a question, you always seem to have the missing information. In the January 1989 issue, Mrs. John Carlson of Texas sent us a photo of an old key machine her husband had owned. (See photograph 1.) She wanted the history



1. Unidentified antique key machine.

and value of the machine. Since that time, several *Shop Talkers* have sent us mail offering to buy the machine. We have forwarded to Mrs. Carlson those letters.

But a gentleman by the name of Horace Dierking of Arizona wrote us a letter with some information on the machine. Here is his letter:

The key machine in question is an old Detroit, better known as a Circle S made by F.W. Stewart Mfg. Co. of Chicago, IL. I purchased two of their key machines 50 years ago. They made one machine for code and duplicating. The other was for cutting bit keys and flat steel.

For code work you turned the dial

on top to your code number. The dial is off center so it changes the depth as you turn it. It used space keys for space. You set it on 0 to duplicate. Mrs. Carlson's machine is older than the two I have although I still use them sometimes.

I converted the bit key machine to cut double-sided Ford. I use a 14MC cutter. It works fine. These machines had good shaft bearings and never seem to wear out. The vises are too close together on the duplicator for small bow. To make a long story short, look on page 56 of the January 1989 issue of The National Locksmith. You will see an ad for this Detroit key machine made up to date by Grace's Supply Co. in Hastings, NE. They discontinued the bit machine.

Mr. Dierking, thanks from all the *Shop Talkers* for your help with is question.

Q: I would like any help you can give me. I have a pair of handcuffs but can't get them open. (See photograph 2.) Can I get keys, or will I have to make them? The only writing I can find is on the part where the key goes in. It reads Marlin Fire Arm Co., New Haven U.S.A., Patented Dec. 12, 1879. What kind of key does it take, and what kind of cuffs do I have?

Richard Niemann
Wyoming

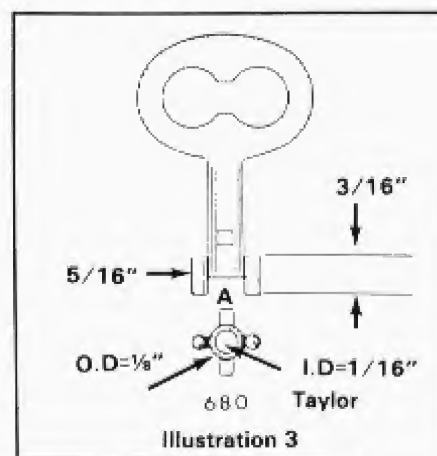


2. Marlin Fire Arms Handcuffs.

A: Dick, your cuffs were the invention of Robert H. Daley and were patented Dec. 2, 1879. I think that you are seeing a small mark in the date that makes it look like the 12th, but the actual date was the 2nd. Your cuffs are the first model, later models had a solid link rather than the chain link. A three cuff model was also manufactured.

These cuffs were manufactured and sold by the Marlin Fire Alarm Co. in New Haven, CT. They are commonly referred to as "The Marlin-Darley Bottleneck." A Marlin catalog from 1886 lists these cuffs at \$4 per pair, polished; and \$4.75 per pair, nickel-plated. The three cuff model lists at \$6.00 and \$7.00 respectively.

Keys are listed at 30 cents each. Sure would be nice to buy them at that price today, but I don't know where you could find one at *any* price. You can fashion a key that will have to look like the Taylor 680, (see illustration 3), but I wouldn't recommend using a 680 unless you are really careful. Break that rascal off inside the plug and you will have real trouble.



The dimensions shown on the sketch may be of some help to you in fashioning a key. To open, insert key, turn 90 degrees clockwise, push down, turn 90 degrees clockwise, pull cuff to open. Rotate key counterclockwise to remove. The screws that you indicate on the photo are retainer screws, but can only be removed when the cuffs are

unlocked. I hope that this information will be of some help to you and would recommend that you attend an antique collectors show in your part of the country. 03

Q: I have learned from this department in the past, and now I have a problem. I have a 1985 Ford Merkur XR4Ti auto that I must make keys for. I was able to pick the door lock to open the car, and have studied the lock to find the code. The code number I found is 1X1052. The door and ignition locks will accept a Taylor X86 key blank. My foreign car code book is an HPC HFCB copyright 1983 and this may be the reason for my confusion. The code book shows X1052 for BMW-NSU and gives the cuts 5776 3314.

What I need is all the information I can get. This is the first Merkur I have ever worked on. The AMC face caps look similar to the Merkur, but the Merkur caps seem a little deeper. This is a blank car, so I have a little time to research the locks before I have to make the key. Thank you for your help. By the way, what is a "NSU?"

*David Boone
Indiana*

A: The Merkur is a German import, that uses the X86 Taylor blank for all locks. This much you already know. Your confusion was in reading the code. The code is sometimes found on the passenger door lock. The code series is TX-001 to 1859, not 1X-1052 as you found on the lock cylinder. The "T" was probably not clearly stamped on the cylinder. The code TX-1052 crosses to the cuts 1223414 according to my records. The key is cut from bow to tip, and the root depths are 1=.324, 2=.300, 3=.277, 4=.253.

The spacing for this lock is erratic, as cuts 2, 4 and 7 must be widened to properly operate all locks. If you use an HPC 1200 code machine, use code card XF13. This auto does not have a primary/secondary or master/valet key system, but the door lock will not contain all the information necessary to make a complete key. The door lock will contain only six wafers. The ignition lock is the only lock on the car to contain the seventh wafer. The easiest method for making keys to this auto when codes are not known is by reading the wafers. This method requires no disassembly, and there is absolutely no risk of damaging the locks.

The locks that use the X86 key are of

an opposing tumbler configuration. This means that when looking into the keyway, the tumblers will appear at the top and bottom of the keyway. The lock uses an alternating pattern for the tumblers. This means that tumblers 1, 3 & 5 will be at the top of the keyway, and tumblers 2, 4 and 6 will be at the bottom of the keyway as you look into the lock. The top and bottom may be reversed depending on which door lock you are reading (left or right). Illustration four is a representation of the keyway, with the wafers shown in reference to the major keyway wards.

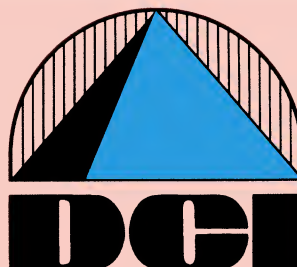
at a time, until the key fully enters and operates the ignition lock. The key will not fully enter the ignition lock until the seventh cut has been made. Reading is by far the easiest, fastest and most profitable method of making keys to foreign autos that I know, but it does take a little practice to become proficient. Codes are nice, but not always available or easy to find.

About the NSU auto; Auto Union was a manufacturer of automobiles in Germany prior to WW-II. After the war, some of the Auto Union plants were on the Russian side of Germany,



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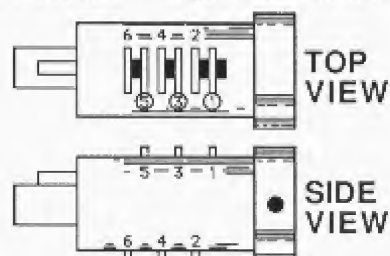
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FORD MERKUR DOOR LOCK



KEYWAY

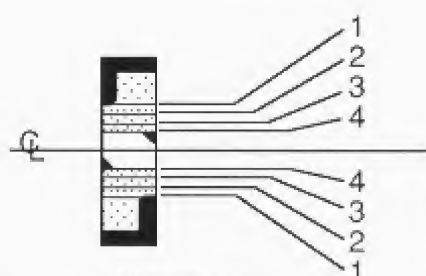


Illustration 4

and were lost. Those plants in the west continued to make cars, and the Auto union name was changed to NSU, named for Neckarsulm. (Necker S Ulm). The city of Neckarsulm draws its name from the Neckar river, and its proximity to Ulm. NSU motors manufactured some of the fastest two wheeled vehicles in the world.

During the '60's, the world land speed record was held by a motorcycle manufactured and sponsored by NSU motor works. In the '60s and '70s NSU manufactured a rear engine car called the Prinz. It looked very much like a scaled down Corvair. They were equipped with either a two or a four cylinder air cooled engine in a 850cc, 1000cc, and at the last a 1250cc version. They were light and extremely fast cars. NSU also made formula 1 racers. Near the end (1967-69), Felix Wankel of NSU had invented the Wankel rotary engine. (Remember the Wankel engine?) The engine was first used in a NSU auto. It was also a first for front wheel drive. NSU licensed manufacture of the Wankel engine to the Japanese about 1969. The company was bought by Audi in 1971, and ceased to exist. I believe that Neckarsulm is also the home town of Albert Einstein. 06

Q: I was called in to do some work on a customer's safe. After repairing the knob on the safe I was asked to make

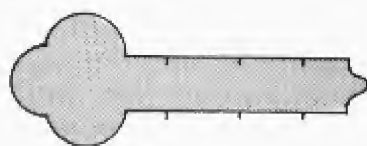


Illustration 5

five keys to the inner doors of the safe. (See illustration 5.) I have not been able to find the blanks used to make the keys with. I know that this is an old safe, but if you can help me locate any blanks, or any other information on

them it would be greatly appreciated.

*L.J.'s Lockshop
Alabama*

A: Making keys for antique safe locks is a labor of love. No one would pay the honest day's labor that is needed to make these keys, unless you have flat steel and bit-type key cutting equipment used on older flat type lever locks. I have old catalogs that list and show these keys, but there is no information concerning where you can order these blanks.



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When one is faced with making keys for older locks, especially flat type lever locks and bit key locks, then measurements are important. Know how long you need the blank to be, and how thick it is measured in thousandths of an inch. Go to a current key blank catalog, like Ilco or the Taylor, and find a safe deposit key blank that is approximately the same size or bigger. Then you will have to cut it down to the proper size.

If you cannot find anything big enough to fit, and if the customer still wants a key, you will have to find a very cooperative machinist, if you are not one yourself. Make the customer aware of the special talents and time required to work on this lock, and give him some idea of the price for these keys. Once the customer hears the cost he may decide that locking the inner door on this safe may not be that important.

07

Q: I have been a locksmith for seven years and have done master keying several times. I have designed two master key systems and maintain several industrial key systems. Recently, I set up a minimaster system that only uses three keys. The keys are "A-1," "A-2" and a "common" key. The A-1 key fits all the doors in the building, and would be the master. The A-2 key fits only a limited number of doors, and the "common" key fits only the front door. The building is a club and only has a limited number of keys. The locks that were used were Kwikset, and all the doors were keyed at the same time. All the keys were also cut at that time from a master set of keys. The only difference in the keys was that the "common" keys had their backsides trimmed to prevent duplication. The only way to make a key is to cut one from the master set and then trim the backside of the blank.

The problem is that sometimes the "common" key and the A-2 key will not open one deadbolt on an outside door. The key operates to lock the cylinder easily in the locking direction, but will catch and not operate to retract the bolt. I have re-pinned the lock and exchanged the cylinders, but the problem still exists. What could be the problem with my system? I have measured the bottom pins and master pins, but they are right on. Can you help?

Keith Graves
New York

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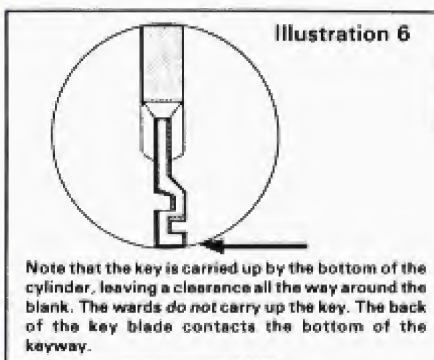


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A: Sounds like an interesting problem. One that I have had occasion to work with before. The Kwikset locks that you are using, are not exactly the best choice for a commercial application, such as a club where the entry door is subject to high volume traffic. My first question is, are you using a 660 or an 880 deadbolt? The 660 deadbolt uses a white metal plug and cylinder and the 880 uses a brass plug and cylinder. The brass cylinder 880 would be the preferred choice for a high traffic application. The fit of the key in the plug, and the longer life of the brass plug is well worth the difference in price.

To explain some of the problems that you are probably encountering, refer to the illustrations. Illustration six shows a properly cut key in the keyway of a lock. You will note that the bottom of the key is resting on the bottom of the cylinder. This is the way the lock was designed to operate. The keyway wards restrict the cylinder and allow only the correct blank to enter. They may, on occasion, touch the sides of the blank, but they are not intended to carry up the key.



You will also note that the key shown does not completely fill the keyway. There is clearance all around the key. This clearance or difference in dimension between the key and the keyway is necessary to allow the key to enter the keyway easily. The manufacturer's original key will usually be the best choice for use in a particular lock, especially when the lock is to be master keyed. Most original keys are manufactured to tighter tolerances than after-market or "jip" blanks. The least expensive, no-name, and private label key blanks are manufactured for a price. Quality simply costs more.

Illustration seven shows the result of thinning the back of a blank. When the key is not allowed to rest on the bottom of the cylinder, the blank settles in the keyway, allowing the pins to drop below the shear line. Lifting up on the key may allow the plug to be turned, but the plug catches and does not oper-

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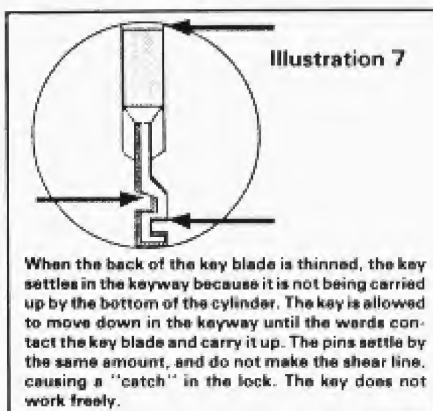
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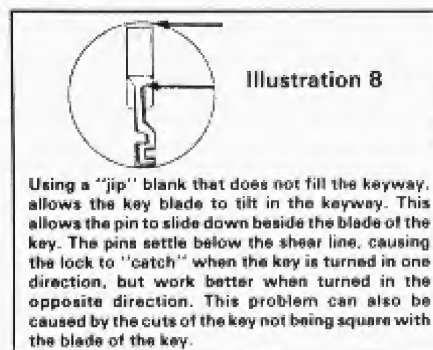
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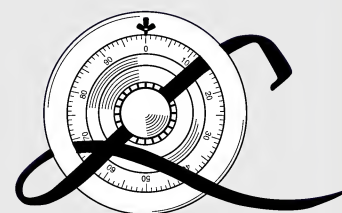
ate freely. The key becomes totally dependent on the accuracy of the warding (keyway wards and key ward cuts or grooves) and not on the root depth of the cuts. (Root depth is the distance from the back of the key to the root or bottom of a cut.)

Removing the back of a key blank or thinning the blank to prevent unauthorized duplication is only a marginally successful alternative to a restricted keyway. When the cylinders are master keyed, the problem gets worse. The catching in the plug causes undue wear of the pin chambers. Eventually, a thin master wafer will slip between the plug and shell at the shear line and the lock will jamb.

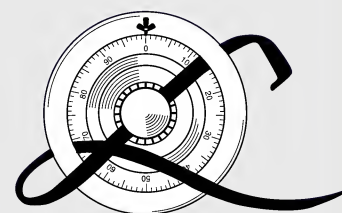
Illustration eight shows a second problem, which relates directly to your symptom of the lock operating freely in one direction but catching or not turning freely in the opposite direction. The key blank shown in the illustration has too much clearance in the keyway. As the key is turned counterclockwise, the bottom pin slips off the top of the key blade, and falls a few thousandths below the shear line. The plug catches, or will not operate freely. If the key is turned clockwise, the blade of the key is forced under the bottom pin, raising it to the shear line and operating the lock easily. This is the most common problem with thin blanks. The key does not fill the keyway properly, allowing the key to tilt.



Use the right key blank. Key sections A and B shown in illustration nine show the difference between a thin



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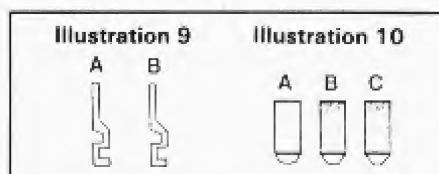
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blank and an original blank. Note that the original blank "A" is thicker in the blade than the thin blank "B." Some after market blanks are just as good as the originals, but some are more well suited to the hardware store key cutters than the locksmith trade. Use original blanks or at least good quality blanks for the best results.



The pins used to pin the cylinders can also have an effect on the operation of the locks. Pictured in illustration 10 from left to right are some common pin configurations. Pin "A" is a ball nose pin. This is the type of pin you might find in Weiser locks. This pin is necessary to overcome the tipping or tilting of the key in the keyway shown in illustration eight. If a Weiser key is cut to an 8 or 9 depth, a pointed pin will have a tendency to slip down beside the key, falling below the shear line and causing the lock to catch. This problem also occurs when a #3 factory depth is used on a Yale 8 (Y-1 or 999) key. The ball nose pin has more tolerance to this fault.

Pin "B" is a flat nose chamfered pin. This is the type of pin you might find in the Iico rim cylinders using the IN-33 keyway and some Kwikset locks. The "ball nose" and "flat nose chamfered" pins both require widened cuts in the key for proper operation.

The last pin, type "C," is a standard conical pin. This is the type of pin that is more or less standard with most universal pin kits. This pin does not require widened cuts to operate properly. This pin does have a tendency to slip off the blade of the key when the conditions outlined in illustration eight "C" are present. Using the ball nose or flat nose chamfered pins may eliminate some of the symptoms caused by key tipping. Use original Kwikset pins, or if necessary, code cut the keys using Weiser depths, widen the cuts, then pin the cylinder with original Weiser ball nose pins.

Rather than shaving the backs off of all the keys, use security bow keys. These keys have a universal head style that does not identify the lock manufacturer by its shape or by a manufacturer's number. The bow simply states "DO NOT DUPLICATE." Stamp the opposite side of the key with your shop name. If more key control is necessary,



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Shop Talk

Continued from page 83

move into a sectional keyway, by one of the commercial lock manufacturers such as Corbin, Russwin or Sargent. If that is not enough key control, there are a number of high security lock manufacturers that can provide you with any level of key control you can afford.

I hope this explanation helps you solve the problem with your master system. This pretty much covers most of the problems that could cause the symptoms you describe. Good luck.06

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Letters

Continued from page 6

public asked who started all this mess, the politicians would be the first to point their fingers at the locksmiths. Are we wasting too much time and money on this madness, fighting among ourselves and others? Yes.

This profession is tough enough as it is without someone looking over your shoulder and correcting your every move. I would like to see all of us together put the lid on Pandora's box, plus lock it and throw away the key forever. We need to start working in a more positive way than negative.

We can do this, by building trust and educating the community. For example: working with neighborhood watch groups, and attending meetings of other business owners. We can work hand-in-hand with the police and fire departments and other city officials, exchanging information and concerns that are for the betterment of the community as a whole. By getting involved more in public relations than in politics, we can convey a positive attitude.

You will find these people will work with you and welcome you with open arms and this will be great for your business.

Steven Glass
Tennessee

Technitips

Continued from page 13

yourself a service holder as shown in illustration two. The Unican fits nicely in the holder and allows both hands to be free to work on the lock.

Place the lock face down into the holder as shown in illustration three. In

Simplex Service Holder
with Unican 1000

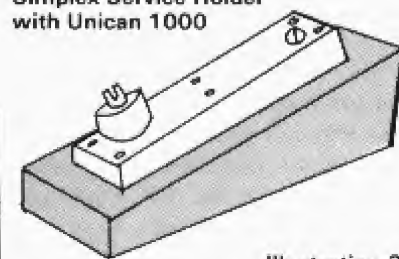


Illustration 3

this position, the back plate screws are exposed and you can get into the case for repairs as necessary. Once you have used this holder, you'll wonder how you ever got along without it.

Lew Noyes Jr.
Florida



**Don't panic!
We have
Security Exit
Devices.**

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High Tech

Continued from page 54

VATS Interrogator is out on one of the trucks and Michele starts to tell Rick that he has to come back later. Tom interrupts and says that he is able to find the right key blank with just an Ohms Meter. Taking out the Encyclopedia, he uses the Ohms Meter and measures the resistance in the key resistor pellet. Using Tom's measurement, she looked up the reading in the Encyclopedia and found it was a number 5 key blank. In just a few minutes he was ready to go.

In the meantime, Joe had gone back to his office and finished up the work on his bank appointment. He makes it in plenty of time and is confident that his staff will be able to handle business competently while he is away. He knows that the more jobs that he handles quickly and efficiently, the more people will recommend him for new jobs. Business is booming and Joe is keeping up admirably. ■